AF CENTER FOR ENVIRONMENTAL EXCELLENCE

# Massachusetts Military Reservation

***PLUME RESPONSE PROGRAM***

# *Final Fuel Spill-12 2000 Annual System Performance and Ecological Impact Monitoring Report*

December 2001

Prepared for:
AFCEE/MMR
Installation Restoration
Program
322 E. Inner Road
Otis ANGB, MA  02542

Prepared by:
Jacobs Engineering Group Inc.

Document No.: A3P-J23-35Z01503-M31-0005

## TABLE OF CONTENTS

## TABLE OF CONTENTS

## TABLE OF CONTENTS



**Figures**

## TABLE OF CONTENTS



**Tables**

## TABLE OF CONTENTS



**<u>Appendixes</u>**

## TABLE OF CONTENTS

## ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| AFCEE | Air Force Center for Environmental Excellence |
| BTEX | benzene, toluene, ethylbenzene, xylenes |
| CLP | EPA Contract Laboratory Program |
| COC | contaminants of concern |
| COPEC | chemical of potential ecological concern |
| DO | dissolved oxygen |
| DOC | dissolved organic carbon |
| EDB | ethylene dibromide |
| EPA | U.S. Environmental Protection Agency |
| ETR | extraction, treatment and reinjection |
| FS-12 | Fuel Spill-12 |
| ft bgs | feet below ground surface |
| ft/day | feet per day |
| ft/ft | feet per foot |
| ft msl | feet mean sea level |
| GAC | granular activated carbon |
| GMS | Groundwater Modeling System |
| gpm | gallons per minute |
| J | estimated value |
| JPAT | Joint Process Action Team |
| MANOVA | multivariate analysis of variance |
| MCL | EPA maximum contaminant level |
| mg/L | milligrams per liter |
| MMCL | Massachusetts maximum contaminant level |

## ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| MMR | Massachusetts Military Reservation |
| Mn | manganese |
| ORP | oxidation-reduction potential |
| PME | performance monitoring evaluation |
| PCA | principal components analysis |
| SD-5 | Storm Drain-5 |
| SMCL | Massachusetts secondary maximum contaminant level for drinking water |
| SPEIM | system performance and ecological impact monitoring |
| TDS | total dissolved solids |
| TOC | total organic carbon |
| TSS | total suspended solids |
| VOC | volatile organic compound |
| YSI | Yellow Springs Instruments, Inc. (water quality meter) |
| µg/L | micrograms per liter |
| 1,2-DCA | 1,2-dichloroethane |

# EXECUTIVE SUMMARY

This report is an assessment of the Fuel Spill-12 (FS-12) plume extraction, treatment and reinjection (ETR) system and associated ecosystems and covers the period from 01 January 2000 through 31 December 2000. In addition, direct impact monitoring results are reported through 02 January 2001. The System Performance and Ecological Impact Monitoring (SPEIM) Program is a combination of two previously separate but related programs: the Performance Monitoring Evaluation Program and the Ecological Monitoring Program. The resultant program was developed to (1) verify system performance and evaluate the effectiveness in capturing and treating the FS-12 plume, and (2) determine if the system is having an adverse impact on the neighboring ecosystems.

A number of modifications were made to the FS-12 ETR system during the year 2000. Detections of ethylene dibromide (EDB) above Massachusetts maximum contaminant levels (MMCLs) in microwells ECMWSNP02S,D indicated that there was contamination of groundwater below Snake Pond and west of the reinjection fence beneath the northeastern shoreline of Snake Pond. Modifications were made to the wellfield in order to address the capture of this contamination. On 02 June 2000, extraction wells 90EW0006 and 90EW0010 were turned off to provide additional pumping capacity to the southern axial extraction wells, which would help retard the movement of the contamination beneath the pond. On 25 July 2000, reinjection wells 90RIW0005 though 90RIW0009 were taken off-line to help pull the contamination near and west of these reinjection wells toward the axial fence. On 14 November 2000, reinjection well 90RIW0010 was taken off-line to also enhance extraction stress (by reducing reinjection mounding) and aid in pulling the contamination toward the extraction axial and toe fences. To address long-term capture of contamination below the pond, a design improvement was developed whereby well 90RIW0010 will be converted to an extraction well (90EW0031). This extraction well was constructed and became operational by 01 June 2001. Groundwater extracted by 90EW0031 will be treated by the FS-12 ETR system. The numerical modeling results indicate that the FS-12 ETR system should be operated at the extraction and reinjection rates specified in Scenario 46

(operation of 90EW0031 at 95 gallons per minute). This is based on the capture performance of the system relative to the new zones of contamination identified beneath Snake Pond and the original basis of design seed set (a very conservative assumption as plume size has significantly decreased since system start-up) along with additional evaluations of potential drawdown and mounding impacts. Ongoing monitoring and continued analysis of hydraulic performance optimization is occurring, so additional modifications to the system are likely. In general, the FS-12 ETR system operated consistent with design flow objectives. Extraction flow rates exceeded 94 percent of their respective design rates during the year 2000. Reinjection flow rates varied throughout the year. Termination of flow to reinjection wells 90RIW0028, 90RIW0029, and 90RIW0030 during the latter half of 2000 resulted in several reinjection wells receiving more process water than was originally designed. Groundwater modeling conducted to assess the hydraulic stresses associated with redistributed reinjection flows demonstrated that the distribution of reinjection flow achieved in 2000 did not adversely affect the performance of the FS-12 ETR system in maintaining plume capture. Computer control upgrades to the FS-12 treatment plant reestablished flow to these reinjection wells in early 2001.

The FS-12 ETR system removed approximately 13.4 pounds of EDB during 2000, yielding a system lifetime cumulative mass removal of approximately 120 pounds from system start-up in September 1997 through December 2000. If the new design-basis EDB plume mass of 225 pounds is compared to the mass removed to date (approximately 120.4 pounds), this represents approximately a 53 percent removal of EDB. The discrepancy between these two EDB removal percentages (96 versus 53 percent) probably indicates that the new design-basis plume shell also overestimates the FS-12 EDB mass present at system start-up. In addition, the design-basis plume shell and mass was based on data collected from 10 March 1993 through 27 May 1997. There was the opportunity for some dispersion and decay before the treatment system was started on 18 September 1997. This dispersion and decay would not be reflected in the extracted mass accounted for by the FS-12 treatment system. However, it is likely that

substantially more mass has either been removed, dispersed, or decayed over the course of more than three years of operation than the 53 percent estimate indicates.

The benzene plume shell basis of design contained approximately 904.3 pounds of benzene, and the current plume contains approximately 58.4 pounds of benzene. The decrease in mass since the original prediction is partially attributed to benzene removal and attenuation processes. However, we believe the original (design) benzene mass was overestimated because current estimates of plume mass are based on more thorough data collection and refined methods of three-dimensional plume mapping and mass estimating. Furthermore, the benzene design basis data set used sampling dates from 10 March 1993 to 27 May 1997, so there had been opportunity for some dispersion and decay before the treatment system was started on 18 September 1997. The estimated total benzene removed remains at approximately 71.7 pounds.

Direct impact monitoring showed that there were no differences in physicochemical parameters between treatment plant influent and effluent, indicating that treatment plant activities were having no notable impact on nearby ecosystems. However, according to analyte-specific F-tests, there was a notable difference in alkalinity between plant influent and effluent. This difference is still not believed to have a notable impact on nearby ecosystems.

Groundwater elevations in background monitoring wells and surface water elevation of Snake Pond exhibit good correlation. Because of relatively low precipitation in 1999, the local groundwater elevation and surface water elevation in Snake Pond has steadily decreased from the summer of 1998 through December 1999. This represents a decreasing trend in groundwater elevations of approximately 3.5 feet over 1999. Groundwater elevations declined at a lower rate in 2000 with the average decline in the background monitoring wells being less than 1.5 feet for the entire year. Similar trends were also evident in monitoring wells within the hydraulic influence of the FS-12 ETR system.

Groundwater elevation contours developed from the March, May, September, and December 2000 synoptic data indicate that groundwater flow was generally to the south-southeast, toward the FS-12 ETR system. Extraction at the axial wells has resulted in groundwater flow gradients toward those wells. Compared to the baseline (preoperational) condition, these gradient changes, in general, extend to the periphery of the FS-12 plume. The spacing and orientation of the operational groundwater elevation contours differ most notably from that of the baseline groundwater elevation contours near the extraction and reinjection wells. These observations indicate that the hydraulic impacts from the FS-12 ETR system are localized.

There is no indication that the FS-12 system is impacting the groundwater flow trajectory related to the source area of the J. Braden Thompson plume.

Assessment of the vertical gradients within the FS-12 monitoring network has demonstrated that aquifer response to system stresses has not varied with time. The FS-12 ETR system is performing as designed under the relatively high (1998) and low/normal (1993, 1999, and 2000) groundwater elevations observed and tested in the groundwater flow model.

The 2000 hydraulic data indicate that hydraulic stresses exerted by the FS-12 ETR system closely resemble those observed since system start-up. These stresses also closely resemble model-predicted stresses based on 1993 conditions (normal/low precipitation conditions) and system shutdown/restart activity data collected in December 1998. The data confirm that the hydraulic impacts of the system, although significant in the area close to the extraction and reinjection fences, do not significantly affect groundwater flow directions or velocities. Regional flow conditions are not altered by the operation of the system, and there is no indication that Snake Pond water levels are affected by operation of the remedial system.

The FS-12 ETR system continues to be effective in capturing and treating the plume, and the overall magnitude of contamination has been significantly reduced. Contaminant concentrations upgradient of the southern toe extraction fence have decreased markedly

since the introduction of the treatment system, and trends from the year 2000 indicate that the contaminant decline is continuing. A few areas within the plume boundaries had increasing concentrations as a result of plume migration. Monitoring did not detect evidence of the residual plume front located downgradient of the toe reinjection fence. Results of downgradient monitoring indicate that breakthrough of organic contamination did not occur in 2000.

The longitudinal and transverse portions of the FS-12 EDB plume have been reduced. The plume has also fragmented due to the recalcitrance of less mobile compounds in the source area. Multivariate analyses of organic and metals contamination indicated that the source area is considerably different from the rest of the plume. In addition to EDB and benzene, continued monitoring of xylenes, toluene and ethylbenzene should be a focus in the trailing edge of the plume. Relatively slow transport and active biodegradation (in comparison to EDB) has hindered the migration of benzene; therefore, benzene maximum contaminant level (MCL) exceedances occur mainly in the northern section of the plume. A single benzene MCL exceedance occurred outside the updated EDB MMCL boundary, between the source area and the main body of the plume.

Several wells exceeded secondary maximum contaminant levels (SMCLs) for metals such as iron and manganese. Exceedances for metals were measured within the plume as well as outside the EDB plume boundary. The distribution of metals in the FS-12 region shows little relationship to the fuel spill, indicating that these metals are probably a natural component of the groundwater.

Surface water elevations for all tested reference and potentially impacted ponds have been mutually dropping since 1998 indicating that surface water hydraulics are being controlled by natural factors.

(intentionally blank)

# 1.0 INTRODUCTION

This report is presented in support of the Air Force Center for Environmental Excellence (AFCEE) Installation Restoration Program at the Massachusetts Military Reservation (MMR) on Cape Cod (Figure 1-1) under Remedial Action Contract Number F41624-00-D-8031, Task Order 0015. This report covers the period from 01 January 2000 to 31 December 2000. In addition, direct impact monitoring results are reported through 02 January 2001. The System Performance and Ecological Impact Monitoring (SPEIM) Program is a combination of two previously separate but related programs: the Performance Monitoring Evaluation (PME) Program and the Ecological Monitoring Program. This report is an annual evaluation of the Fuel Spill-12 (FS-12) extraction, treatment, and reinjection (ETR) system.

This report is organized in the following manner. Section 1.0 is the introduction, and Section 2.0 provides the background information on the MMR, FS-12 plume, and FS-12 ETR system. Section 3.0 outlines the methods used in the sampling and analysis of the data for this annual report. Section 4.0 covers the treatment plant performance monitoring. Section 5.0 discusses the remedial system impact monitoring results and the characteristics of the FS-12 plume. Section 6.0 provides the summary of results and conclusions of the annual monitoring. Section 7.0 contains recommendations, and Section 8.0 is a list of references used in the report.

## 1.1 GOALS

The FS-12 ETR system began operating on 18 September 1997 to remediate the FS-12 plume located east and north of Snake Pond in Sandwich, Massachusetts. The FS-12 plume is defined as the extent of groundwater contaminated with ethylene dibromide (EDB) at concentrations exceeding the Massachusetts maximum contaminant level (MMCL) drinking water standard of 0.02 micrograms per liter (µg/L) (Figure 1-2). The ETR system is a network of 25 extraction wells that extract groundwater, treat it to remove plume contaminants, and reinject the treated water to the aquifer through 23 reinjection wells (Figure 1-3). The SPEIM program focuses on two primary goals in

evaluating the FS-12 ETR system. The first goal is to assess system performance and evaluate the effectiveness of the treatment system in capturing and treating the FS-12 plume. The following tasks have been developed to support this goal:

- *Evaluation of the effectiveness of horizontal and vertical hydraulic capture of the plume*. This is achieved by measuring water levels at selected locations and frequencies to determine groundwater flow directions, gradients, drawdown, and mounding due to the extraction well and reinjection well fences.
- *Evaluation of the nature and extent of groundwater contamination and migration trends during FS-12 ETR system operation*. This is achieved by assessing the results of groundwater quality monitoring conducted upgradient of the toe extraction fence. Data are used to guide possible adjustments in the FS-12 ETR system to maintain adequate vertical and horizontal capture of the contaminant plume in response to changing conditions and plume geometry, and to guide adjustments in the monitoring network.
- *Determination of contaminant migration past the toe extraction fence*. This is achieved by assessing the results of groundwater quality monitoring conducted downgradient of the toe extraction fence.
- *Determination of treatment plant efficiency*. This is achieved by monitoring the plant influent, plant process water, and effluent and verifying removal of contaminants from the extracted groundwater.

The second goal of SPEIM is to assess whether the ETR system is having an adverse impact on the neighboring ecosystems. The following tasks have been developed to support this goal:

- *Evaluation of the geochemistry of the plant influent and effluent*. This is achieved by comparison of physicochemical parameters between influent and effluent at specified frequencies and assuring that the plant has not adversely affected the quality of the groundwater prior to reinjection into the aquifer.
- *Evaluation of water level changes as a result of plant activity*. This is achieved by comparing changes in pond surface water and groundwater elevations to water levels in reference ponds and wells, respectively.

## 1.2 APPROACH

SPEIM utilizes a two-part approach to assess the effectiveness of the treatment system and its potential impact on the ecosystems. This approach includes (1) treatment plant performance monitoring, and (2) remedial system impact monitoring. Treatment plant performance monitoring evaluates the effectiveness of the treatment plant to remove contaminants from the groundwater and to regulate the quality of the water reinjected into the aquifer. Remedial system impact monitoring includes: assessing the extraction and reinjection systems and their influence on the aquifer and plume characteristics, evaluating trends in plume dynamics, and assessing the impacts of the treatment system on the aquifer and nearby ecosystems.

### 1.2.1 Treatment Plant Performance Monitoring

Treatment plant performance monitoring involves collecting analytical and water quality samples from the influent, after the granular activated carbon (GAC) units, and from the effluent (Figure 1-4). These procedures are specified in the *Final SD-5 North and FS-12 Groundwater Treatment Systems Operations and Maintenance Plan* (AFCEE 1998e). Analytical samples are collected to determine the effectiveness of the treatment system in removing contaminants from the groundwater. Water quality samples were analyzed to ensure the treated water was compatible with downgradient groundwater. Results of the treatment plant performance monitoring are discussed in Section 4.0.

### 1.2.2 Remedial System Impact Monitoring

The FS-12 remedial system is designed to capture groundwater over an approximate 140 acre area east and north of Snake Pond where EDB exceeds the MMCL of 0.02 µg/L. A network of extraction and reinjection wells located within and outside the FS-12 plume is used to achieve this objective (Figure 1-3). Remedial system impact monitoring focuses on trends in plume dynamics and the effects of the treatment system on neighboring ecosystems. The methods employed for these assessments are presented in the *Final Performance Monitoring Evaluation Plan for Fuel Spill-12* (AFCEE 1998a), the *Final Fuel Spill-12 (FS-12) Groundwater Plume Phase II Pre-Operational Ecological*

*Sampling Plan* (AFCEE 1998d), the *Final Work Plan for the Ecological Assessment Associated with Groundwater Plumes and Remedial Activities* (AFCEE 1998b), and the *Quality Program Plan* (AFCEE 2000d).

The determination of the nature and extent of the contamination was achieved by the results of groundwater chemistry monitoring conducted at various locations within and near the groundwater plume. Monitoring was conducted to characterize the horizontal and vertical extent of the plume and document changes in chemical concentrations over time. Groundwater monitoring data were also collected to determine if groundwater contamination was migrating beyond the zone of capture of the extraction fence. All groundwater data were compared against drinking water standards for all chemicals analyzed.

The effects of reinjection of groundwater into the aquifer on surrounding ecosystems were monitored at downgradient groundwater wells and surface water bodies. The treatment system was designed to remove contaminants from the affected water; however, physicochemical parameters important to ecosystems were monitored to assess any alterations due to the treatment process. Previous annual assessment reports have monitored changes in physicochemical parameters such as pH or dissolved oxygen (DO) by a comparison of results from potentially affected ecosystems with those from reference or control ecosystems. In 2000, a new approach was implemented where all previous monitoring for ecological parameters was reduced to only monitoring physicochemical parameters at the plant. A comparison of plant influent and effluent now serves as the indicator for plant impacts on physicochemical parameters and whether these geochemical changes may affect nearby ecosystems. The modification of this monitoring strategy is documented in Appendix B.

## 2.0 BACKGROUND

The MMR is located in the western portion of Cape Cod and occupies approximately 22,000 acres (35 square miles) within the towns of Bourne, Sandwich, Mashpee, and Falmouth in Barnstable County. The FS-12 ETR system is one of several groundwater treatment systems operating at the MMR (Figures 1-1 and 1-2).

### 2.1 HISTORY OF THE MMR

Military use of portions of the MMR began as early as 1911. Most of the activity, however, has been conducted since 1935 and has included operations by the U.S. Army, U.S. Coast Guard, U.S. Air Force, Massachusetts Army National Guard, U.S. Air National Guard, and Veterans Administration. The level of activity at MMR has varied over its operational history in accordance with national priorities. Vehicle maintenance and other activities conducted at MMR have resulted in a number of contaminants being released into the environment, particularly the groundwater.

### 2.2 PLUME DESCRIPTION

The FS-12 plume covers approximately 140 acres and lies mostly outside the boundary of MMR in the village of Forestdale within the town of Sandwich, Massachusetts (Figure 1-2). The FS-12 plume underlies most of a privately owned summer camp, which is located along the eastern boundary of the MMR. Some permanent residential housing exists on the property adjacent to the summer camp.

The FS-12 plume originated from a fuel pipeline leak in the early 1970s along Greenway Road, north of Camp Good News (Figure 1-3) (AFCEE 1998a). Both aviation gas and jet fuel were carried through the pipeline. The contaminants of concern (COCs) within the FS-12 plume are benzene and EDB. Most of the FS-12 plume is migrating through glacial outwash sands and gravels. As the FS-12 plume migrates, the top of the plume descends from the water table (approximately 70 feet mean sea level [ft msl]) in the FS-12 source area to approximately 0 ft msl in the area of the southern toe extraction fence (AFCEE 1998a). At the time of the FS-12 ETR system design in 1996, the plume

covered a linear distance of approximately 5,000 feet from the source area to the southern toe extraction fence. The maximum projected width of the entire plume perpendicular to groundwater flow was approximately 2,300 feet, and the maximum thickness of the plume was approximately 150 feet. Since this time, the plume has collapsed as pumping stress has pulled the boundaries of the plume toward the extraction fences.

The J. Braden Thompson plume, which is unrelated to the MMR and is undergoing remediation by the Commonwealth of Massachusetts, is located approximately 700 feet south of the southern toe of the FS-12 plume (Figure 1-3). The J. Braden Thompson plume consists of chlorinated solvents, which have leached into the ground from a disposal area on private property between Camp Good News and J. Braden Thompson Road (AFCEE 1998a). Due to its proximity to the FS-12 plume, the potential impact of the FS-12 ETR system on the J. Braden Thompson plume is monitored.

## 2.3 REMEDIAL TREATMENT SYSTEM

The FS-12 ETR system, operational since 18 September 1997, was designed to extract 772 gallons per minute (gpm) from the aquifer using 25 extraction wells (Figure 1-3) (AFCEE 1997). This extraction rate was increased to 782 gpm as a result of an evaluation of system performance and recalibration of the groundwater model, as summarized in the *Second Quarter 1998 Fuel Spill (FS-12) Performance Monitoring Evaluation (PME) Data Report* (AFCEE 1998f). The discovery of EDB in February 2000 below Snake Pond and outside the known plume boundary initiated a numerical modeling assessment of the system. The flow rate was raised to 797 gpm to retard the progress of the contamination below Snake Pond pending a more aggressive remedial action. This is the basis for the increased flow rate as presented (modeling scenario 24) in Appendix F of the *Fuel Spill-12 Quarterly System Performance and Ecological Impact Monitoring Report, April – June 2000* (AFCEE 2000e).

Eleven extraction wells are spaced evenly across the width of the plume near its downgradient extent. These are referred to as the southern toe extraction fence. Fourteen extraction wells are located in a longitudinal array near the center of the plume where

contaminant concentrations are highest. These comprise the axial extraction fence (Figure 1-3). The groundwater is extracted and transferred through double-walled high-density polyethylene pipe to the FS-12 treatment plant where plume contaminants are removed by GAC filtration. Treated water is returned to the aquifer through 23 reinjection wells situated in two linear arrays: between the axial extraction wells and Snake Pond, and downgradient of the southern toe extraction fence.

The discovery of EDB under Snake Pond outside the known plume boundary required adjustments to the FS-12 ETR system during the course of 2000. Detections of EDB above MMCLs in microwells ECMWSNP02S,D indicated that there was contamination of groundwater below Snake Pond and west of the reinjection fence beneath the eastern shoreline of Snake Pond. Modifications were made to the wellfield in order to address the capture of this contamination. On 02 June 2000, extraction wells 90EW0006 and 90EW0010 were turned off to provide additional capacity to the southern axial extraction wells, which would help retard the movement of the contamination beneath the pond. Extraction well 90EW0006 is located west of the western FS-12 plume contour. Extraction well 90EW0010 was turned off because any contamination within its capture zone would be easily captured by 90EW0011 downgradient. On 25 July 2000, reinjection wells 90RIW0005 though 90RIW0009 were taken off-line to help pull the contamination near and west of these reinjection wells toward the axial fence. On 14 November 2000, reinjection well 90RIW0010 was taken off-line to also enhance extraction stress (by reducing reinjection mounding) and aid in pulling the contamination toward the extraction axial and toe fences. To address long-term capture of contamination below the pond, a design improvement was developed whereby well 90RIW0010 will be converted to an extraction well (90EW0031). This extraction well was constructed and became operational 01 June 2001. This modification will ensure capture of the area of groundwater contamination below Snake Pond (AFCEE 2000e).

## 2.4 PREVIOUS INVESTIGATIONS

The investigations conducted to support the design of the FS-12 treatment system began in July 1996 and continue to the present; the results of these studies have been presented

in several reports (AFCEE 1999d,f,h). A summary of the following reports, which report through October 1999, is presented in Section 2.4 of the *Final Fuel Spill-12 Treatment System 1999 Annual System Performance and Ecological Impact Monitoring Report* (AFCEE 2001c).

- The results of the Phase I Ecological Monitoring Program were presented in the *Final Ecological Studies 1997 Annual Report for the FS-12, SD-5 and CS-10 Groundwater Plumes* (AFCEE 1998g).
- Chemical and hydraulic monitoring were performed under the PME program from August 1997 through December 1998 (AFCEE 1998f, 2000b, 1998i, 1999a, 1999b, and 1999c). This period of time includes the PME baseline sampling, which occurred one month before system start-up in September 1997.

Investigations conducted in 1999 have produced two quarterly reports for PME (AFCEE 1999e, 2000a), a second quarter/semiannual SPEIM report (AFCEE 1999g), and an annual assessment (AFCEE 2001c). The following is a summary of the investigations since October 1999:

- EDB was detected for the first time at three monitoring wells located downgradient of the southern toe extraction fence: 90MW0077, 90MW0089E, and 90MW0089F. It was determined that breakthrough did not occur at the southern toe fence, but rather the EDB detections were part of the FS-12 residual plume front that was downgradient of the toe extraction fence at the time of system start-up in September 1997. In addition, EDB above the MMCL was found in Snake Pond microwell ECMWSNP02D.
- The FS-12 ETR system had significantly reduced the magnitude and volume of the plume. EDB concentrations in monitoring wells in the core of the plume have declined from several hundred µg/L to less than 10 µg/L. EDB concentrations in monitoring wells used to assess plume width, combined with knowledge of groundwater flow lines and groundwater modeling results, suggested that the central and northern transverse portions of the plume had become reduced. Through December 1999, the FS-12 ETR system had treated approximately 861.4 million gallons of groundwater and removed approximately 71.7 pounds of benzene and 106.9 pounds of EDB.
- Ecological monitoring determined exceedance of several ecological criteria guidelines for temperature and chlorophyll-*a*. The temperature exceedance occurred prior to treatment system start-up, and chlorophyll-*a* concentrations were more stable in Snake Pond than Peters and Triangle ponds. There was no indication that the flux

of treated water had any detrimental effect on the physicochemical parameters in Snake Pond.

Investigations in 2000 have produced three quarterly monitoring reports (AFCEE 2000c, 2000e, and 2001d). The following are observations from the FS-12 SPEIM program through September 2000:

- The detection of EDB in well ECMWSNP02D was confirmed in 2000 with EDB detections above the MMCL for EDB in ECMWSNP02S and ECMWSNP02D (microwells in Snake Pond). Additional detections of EDB west of the western reinjection fence were found at 90MP0059B, 90MP0060A, and 90MW0049. One detection of EDB below the MMCL was found in 90MW0091C downgradient of the southern toe fence.
- A recommendation was made to modify the plant direct impact monitoring to include analysis of treatment plant influent and effluent only. This recommendation was implemented in August 2000 (Appendix B).
- Forty-four diffusion samplers were placed in Snake Pond by the U.S. Geological Survey (USGS) to determine whether groundwater contaminated with EDB below Snake Pond was upwelling into the surface water. Results for all diffusion samples collected in May 2000 were nondetect for EDB.
- A monitoring program was instituted in the summer 2000 to determine if there were any adverse effects from Snake Pond on human health. Two shallow drive-point samples and two surface water samples were collected biweekly. Results for all of the samples were nondetect for EDB.
- The groundwater flow model was used to assess capture of contaminants beneath Snake Pond. The modeling suggested that the ETR system should be operated at a flow rate of 797 gpm using the extraction and reinjection flow rates specified in Scenario 24. Although particles from ECMWSNP02D and ECMWSNP02S were not captured in this scenario, the trajectory of flow was re-aligned toward the southern extraction well fence, flow velocities at these locations were slowed, and the contamination at the shallow well screen (ECMWSNP02S) was diverted from discharging to Snake Pond. Resulting system modifications included shutting off wells 90EW0006 and 90EW0010 to redistribute flow and allow more aggressive pumping along the southern axial wells. Reinjection wells 90RIW0005, 90RIW0006, 90RIW0007, 90RIW0008, and 90RIW0009 were turned off on 25 July 2000 to reduce the hydraulic influence and help with the capture of contamination from the shallow well.
- From September 1997 to September 2000, approximately 117.7 pounds of EDB and 71.7 pounds of benzene were removed by the FS-12 ETR system.

- Five monitoring wells were placed around the perimeter of Snake Pond in October and November 2000. Monitoring wells 90MW0100A and B were placed on the eastern shore of Snake Pond, south of 90MW0050. The total depth of 90MW0100A,B is 199 feet below ground surface (ft bgs). Screening data collected during well placement, taken at 10-foot intervals from the water table down, indicated concentrations of EDB above the MMCL at -15.5 ft msl (1.01 µg/L, 31 October 2000), -25.5 ft msl (0.357 µg/L, 31 October 2000), and -45.5 ft msl (0.382 µg/L, 31 October 2000). EDB concentrations below MMCLs were encountered at -35.5 ft msl (0.01 µg/L, 31 October 2000), -55.5 ft msl (0.015 µg/L, 31 October 2000), and -75.5 ft msl (0.006J µg/L, 01 November 2000). Screens were set from -73.95 to -78.77 ft msl for 90MW0100A and -18.86 to -23.68 ft msl for 90MW0100B. Monitoring well 90MW0101A was placed on the northern shore of Snake Pond and drilled to a depth of 148 ft bgs. Well 90MW0101A had a detection of EDB at -43.3 ft msl (0.007J µg/L, 08 November 2000) and a detection of PCE at -46.7 ft msl (0.465J µg/L, 07 November 2000). The screen for 90MW0101A was set from -40.48 to -45.29 ft msl. Monitoring well 90MW0102A, also located on the northern shore of Snake Pond, was drilled to a depth of 148 ft bgs. All EDB and VOC analyses were nondetect in the screening samples from this well. One screen was set from -41.38 to -46.13 ft msl. Monitoring well 90MW0103A was placed on the eastern shore of Snake Pond, south of 90MW0100A,B, and drilled to a depth of 200 ft bgs. All EDB and VOC analyses were nondetect in the screening samples from this well. One screen was set from -44.05 to -48.85 ft msl.

# 3.0 METHODS

The data used for the FS-12 SPEIM assessment were collected between 01 January 2000 and 02 January 2001. The following subsections describe methods for sample collection and analysis and system performance assessment. The monitoring was conducted in accordance with the *Final Performance Monitoring Evaluation Plan for Fuel Spill-12* (AFCEE 1998a), *Final Work Plan for the Ecological Assessment Associated with Groundwater Plumes and Remedial Activities* (AFCEE 1998b), and *Final Fuel Spill-12 (FS-12) Groundwater Plume Phase II Pre-Operational Ecological Sampling Plan* (AFCEE 1998d). Modifications to these plans for 2000 are documented in various project notes in Appendix B.

## 3.1 TREATMENT PLANT PERFORMANCE MONITORING

FS-12 treatment plant performance monitoring is conducted to aid in the interpretation of treatment plant performance in order to evaluate the effectiveness of the FS-12 treatment plant for contaminant removal and to assess treatment process direct impacts.

### 3.1.1 Treatment Effectiveness

Treatment effectiveness is the ability of the FS-12 ETR system to remove contaminants from the FS-12 plume and return treated water that is similar in groundwater chemistry to that of the aquifer. Samples are collected at various points within the treatment process to monitor the effectiveness of the FS-12 treatment plant contaminant removal and to determine operational needs (e.g., carbon replacement). Samples are collected on a monthly basis for chemical and physicochemical parameters. Water quality parameters (pH, DO, temperature, oxidation-reduction potential (ORP), specific conductivity, and turbidity) are measured with a Yellow Springs Instruments, Inc. (YSI) water quality meter. Results of the FS-12 treatment plant efficiency monitoring are discussed in Section 4.0.

Monthly sampling protocols for the FS-12 plant include monitoring for EDB, volatile organic compounds (VOCs), total dissolved solids (TDS), total suspended solids (TSS),

total iron, total manganese, alkalinity, total organic carbon (TOC), and field parameters. Samples for EDB and VOC analyses are collected monthly from the plant influent, post-lag carbon vessel 101, post-lag carbon vessel 103, and the plant effluent (Figure 1-4). A conditional sampling is performed during the first monthly sampling event following a carbon exchange in either of the lead carbon vessels. Conditional sampling entails collecting a sample from the lead polishing vessel.

The detection of EDB or benzene in effluent from post-lag carbon vessel 101 or post-lag carbon vessel 103 requires an exchange of carbon in the corresponding lead vessel. Lead and lag vessel positions in the treatment system process flow are transposed following carbon exchange. Detection of EDB or benzene in effluent from the lead polishing vessel (102 series) necessitates an exchange of carbon in that vessel. After the carbon is replaced, lead and lag polishing vessel positions are reassigned.

When a carbon exchange is required for either parallel train, the affected train is taken off-line. Influent flow to the plant is reduced and diverted to the operational train until the carbon exchange is completed. If one of the vessels in the polishing train requires a carbon exchange, only that vessel is taken off-line. The remaining vessel in the polishing train remains on-line throughout the exchange. In the unlikely event that breakthrough occurs in both polishing vessels, the plant is taken off-line, and carbon is changed in both vessels.

In addition, TDS, alkalinity, TOC, iron and manganese samples are collected monthly from the plant influent and effluent. Field parameters (DO, pH, temperature, specific conductivity, turbidity, and ORP) are measured each time a port is sampled.

### 3.1.2 Plant Direct Impact Monitoring

Selected upgradient monitoring wells and plant effluent were monitored monthly for physicochemical parameters (temperature, DO, pH, ORP, specific conductivity, turbidity, alkalinity, dissolved organic carbon [DOC], and TOC) and micronutrients (total nitrogen, ammonia, nitrate, nitrite, total phosphorus, and orthophosphate) to determine the direct

impacts the treatment system was having on these parameters (Table 3-1). Three monitoring locations (90MW0070, 90PZ0205, and 90MW0020) were selected to represent the groundwater upgradient of the FS-12 ETR system (Figure 3-1). These upgradient wells were selected to measure the variability of upgradient groundwater. One well is located in the plume (90MW0020), one at the plume boundary (90MW0070), and one outside the plume (90PZ0205). The piezometer 90PZ0205 was later replaced by 90MP0059D because of access limitations (Appendix B). These wells were monitored monthly for physicochemical parameters to characterize the groundwater upgradient of the treatment system. The physicochemical parameter and micronutrient results from the upgradient wells were compared to the results of monthly measurements taken and samples collected from the FS-12 ETR system plant effluent port (90PLT01053) to determine if the plant was having an impact on any of these parameters.

In August 2000, a recommendation was made to replace the sampling of upgradient monitoring wells with monthly monitoring at the plant's influent port (90PLT01001) (Appendix B). An agreement was reached and monthly samples were collected for physicochemical parameters and micronutrients. The multivariate analysis of variance (MANOVA) of plant direct impact monitoring (described in Section 3.2.7.1) was performed for only those samples collected since August 2000.

## 3.2 REMEDIAL SYSTEM PERFORMANCE MONITORING

FS-12 remedial system performance monitoring includes assessing the hydraulic effects of the extraction and reinjection systems and their influence on the aquifer and on plume characteristics and contaminant monitoring to assess changes in contaminant concentrations and plume geometry

### 3.2.1 Hydraulic Monitoring

Groundwater elevations were measured at locations throughout the FS-12 plume area and in Snake Pond in order to assess the horizontal and vertical extent of hydraulic capture of the FS-12 plume (Figure 3-1). These data are used to calculate horizontal and vertical

gradients, to create potentiometric contour maps, and to compare gradients to groundwater model predictions. This information was used to assess ETR system hydraulic performance and to assess system pumping rates, as necessary, in order to maintain plume capture. Results of the hydraulic monitoring program are discussed in Section 5.1.

Groundwater elevations were measured in accordance with the technical procedure MMR Tech-006 (AFCEE 2000d). Measurement precision is 0.01 foot with surveying and monitoring equipment available. Groundwater elevations in the extraction and reinjection wells were determined by automated electronic water level sensors and recorded by the treatment plant computer.

### 3.2.2 Reinjection Impact Monitoring

Reinjection impact monitoring was conducted at locations downgradient of the reinjection fences in order to assess the potential impact of reinjected water on the groundwater hydrology, particularly adjacent to Snake Pond. Results of the reinjection impact monitoring are discussed in Section 5.4.

### 3.2.3 Plume Monitoring

Plume monitoring is conducted to assess contaminant and water chemistry concentrations, distribution, and trends using data from the monitoring wells specified in Table 3-1. Sampling was conducted using the Groundwater Purging and Sampling Procedure, Low-Flow and Standard Method, TECH-015 (AFCEE 2000d). A data summary report, describing the data quality evaluated during the data validation process, is attached as Appendix C. Results of the plume monitoring are discussed in Section 5.5.

### 3.2.4 Groundwater Quality

Groundwater quality samples are collected to assess the potential impact the FS-12 ETR system has on the aquifer. Groundwater quality was analyzed downgradient and upgradient of the FS-12 ETR system. In addition, reference groundwater samples were

collected in areas outside the influence of a contaminant plume or a groundwater treatment system.

Groundwater samples were collected throughout 2000 from microwells, monitoring wells, and piezometers to monitor water quality. The groundwater samples were analyzed for all or part of the following by the designated methods:

- EPA Contract Laboratory Program (CLP) methods for VOCs and EPA Method 504.1 for EDB,
- CLP target analyte list (TAL) metals, physicochemical parameters: DOC, TOC, ammonia, nitrate, nitrite, alkalinity, total nitrogen, total phosphorus, and total phosphate,
- Field parameters: pH, temperature, DO, specific conductivity, ORP, and turbidity.

Routine groundwater sampling included quarterly, semiannual and annual sampling of monitoring, extraction, and reinjection wells (Table 3-1, Figures 3-1 and 3-2). Sampling was conducted using the Groundwater Purging and Sampling Procedure, Low-Flow and Standard Method, TECH-015 (AFCEE 2000d). Groundwater impact results are presented in Section 5.6.

### 3.2.5 Surface Water Quality

Surface water quality monitoring was conducted to define the characteristics of the potentially impacted and reference surface water bodies associated with the FS-12 ETR system. This monitoring included an assessment of physical and physicochemical parameters over the course of the annual sampling events. These data were used to determine if the FS-12 ETR system was having an adverse effect on the ecosystems within its sphere of influence.

Four ponds (Snake, Weeks, Peters and Triangle) were sampled in 2000 (Figures 3-3 through 3-6). Snake and Weeks ponds were identified as potentially impacted ecosystems. Peters and Triangle ponds were identified as ponds of similar characteristics

that would serve as a control group or reference for the potentially impacted ponds. The surface water samples were analyzed for the following standard suite of analytes:

- Physicochemical parameters: DOC, TOC, ammonia, nitrate, nitrite, alkalinity, total nitrogen, total phosphorus, total phosphate, and chlorophyll-a;
- Field parameters: pH, temperature, DO, specific conductivity, ORP, and turbidity;
- Secchi disk depth.

Routine surface water monitoring was conducted quarterly (Table 3-2). The laboratory samples were collected at two depths within each sampling location: (1) one meter below the pond surface and, (2) if a hypolimnion was identified, half the distance between the thermocline and the pond bottom. The field parameters were measured at each sampling location at 3-foot intervals through the water column.

The Secchi disk depth was measured at each location. Sampling was conducted in accordance with the technical procedure Surface Water Sampling, TECH-017 (AFCEE 2000d). Surface water impacts are presented in Section 5.8.

Surface water elevations were recorded at monitoring stations in Snake, Weeks, Peters and Triangle ponds on a monthly basis.

### 3.2.6 Data Adjustments and Deviations from the Work Plans

The following deviations from the monitoring program occurred during the period January 2000 – December 2000. Project notes documenting many of these deviations can be found in Appendix B and are referenced accordingly.

- Staff gauges for Snake Pond (ECSGSNP02), Weeks Pond (ECSGWKP02), Peters Pond (ECSGPTP02), and Triangle Pond (ECSGTRP02) were placed in March 2000. There are no staff gauge readings for January, February, or December 2000 because the ponds were frozen. The freezing and thawing of the ponds has an adverse effect on the accuracy of the staff gauge readings.

- Monitoring well 96SV0013 was substituted for monitoring well 90WT0013 as part of the source area monitoring program on 01 March 2000 (project note AFC-J23-35U40503-A4-0001).
- Both a surface water and a sediment sample were collected from Snake Pond due to a detection of EDB in a shallow microwell (ECMWSNP02S) according to requirements of the *Final Work Plan for the Ecological Assessment Associated with Groundwater Plumes and Remedial Activities* (AFCEE 1998b) (project note AFC-J23-35U405030A4-0002).
- Microwells ECMWSNP02S,D and ECMWSNP03S,D were added to the quarterly sampling program for EDB and VOC analyses due to detections of EDB above the MMCL in ECMWSNP02S,D in March 2000 (project note AFC-J23-35U40503-A4-0003).
- Monitoring well 90MW0070 was substituted for 90MW0004 and monitoring well 90MP0059D was substituted for 90PZ0205 for plant direct impact monitoring in April 2000 (project note AFC-J23-35U40503-A4-0004).
- Twenty additional monitoring wells (outside of the SPEIM program) were sampled once for EDB (project notes AFC-J23-35U40503-A4-0005 and 0011). One of the wells on the original list, 90WT0016, was found damaged, and monitoring well 90MP0059A was sampled as its replacement.
- Sampling of groundwater from monitoring well 90MW0086C for EDB changed from annual to quarterly in April 2000 (project note AFC-J23-35U40503-A4-0006).
- An additional 10 monitoring wells were measured for synoptic water levels in the April – June 2000 quarter. These wells were 90MW0064, 90MW0064A, 90MW0076, 90MW0078, 90MW0079A, 90MW0079B, 90MW0079C, 90MW0081, 90MW0085A, and 90MW0085B. These wells correspond to wells identified in project note AFC-J23-35S19212-P1-0006 and were carried over from the January – March 2000 quarter. Three monitoring wells (90JB001C, 90JB0004A, and 90MP0060D) were not sampled as part of the synoptic survey for the April – June quarter.
- Direct impact monitoring wells 90MP0059D, 90MW0020, and 90MW0070 were removed from the sampling program, and the influent port at the FS-12 treatment plant was added in August 2000 (project note AFC-J23-35U40503-A4-0015). Monthly sampling of the direct impact monitoring wells was restricted in June and July 2000 because of Camp Good News access issues.
- Monthly physicochemical sampling was added for the influent port 90PLT01001 in August 2000 (project note AFC-J23-35U40503-A4-0015).
- Detections of EDB during one-time-only sampling events prompted the continuation of sampling at selected wells. Wells 90MP0059B, 90MW0049, 90MP0060A, and 90MP0060B were proposed for semiannual sampling for EDB analysis (project note AFC-J23-35U40503-A4-0016).

- As described in project note AFC-J23-35U40503-A4-0017, the source area well 90MW0019 was to be sampled in September 2000 to better define the boundary in the northwestern section of the plume. This sampling event occurred in November 2000. Three wells, 90MW0082A, 90MW0082B, and 90MW0017, were not deemed necessary and were not sampled according to the same project note.
- Piezometer 90P0001C, also known as 90PZ01C01, was renamed 90PZ1-C1 in October 2000 along with 90PZ1-A1,2,3 and 90PZ1-B1,2,3 (project note AFC-J23-35U40503-P1-0004).
- Additional site characterization was implemented in November 2000. One well with two screens (90MW0100A,B) was added to the eastern shore of Snake Pond. Two additional single set wells were placed on the north shore of Snake Pond (90MW0101A and 90MW0102A) and one additional single set well was placed on the eastern shore of Snake Pond (90MW0103A) (project notes AFC-J23-35U40503-A4-0020, AFC-J23-35U40503-P1-0005, AFC-J23-35U40503-A4-0022, and AFC-J23-35U40503-A4-0023). Monitoring wells 90MW0101A and 90MW0102A were placed on the north shore of Snake Pond to determine the western extent of the "plumelet" boundary. The plumelet was defined by concentrations of EDB above MMCLs at ECMWSNP02S,D and 90MP0059B. Monitoring well 90MW0100A,B was placed on the eastern shore of Snake Pond downgradient of ECMWSNP02S,D, 90MP0060A, and 90MW0049 where concentrations of EDB were found above MMCLs in 2000. Monitoring well 90MW0103A was co-located with ECPZSNP02 on the eastern shoreline of Snake Pond further downgradient of 90MW0100A,B. This well was placed to identify the extent of an area of contamination that was discovered when concentrations of EDB above the MMCLs were detected in 90MW0100A,B during screening.
- In November 2000, screening samples collected from 90MW0100A,B had concentrations of EDB above the MMCL. To track potential downgradient migration of contamination from these wells, well 90MW0058 was sampled once for EDB in November 2000 (project note AFC-J23-35U40503-A4-0023).
- In November 2000, a recommendation was made to eliminate all surface water and groundwater monitoring for physicochemical parameters. This amended monitoring program was approved in December 2000 (project note AFC-J23-35U40501-P1-0055). Monitoring of physicochemical parameters will continue at the plant's influent and effluent ports as part of the treatment plant direct impact monitoring program.
- Forty-four diffusion samplers were placed in Snake Pond by the USGS to determine whether groundwater contaminated with EDB below Snake Pond was upwelling into the surface water (Figure 3-4). Results for all diffusion samples collected in May 2000 were nondetect for EDB.

### 3.2.7 Statistical Methods

The following four analyses were used to provide statistical evidence for observed trends in measured data from FS-12.

#### 3.2.7.1 <u>Multivariate Analysis of Variance (MANOVA)</u>

The geochemistry from direct impact monitoring was subjected to a multivariate analysis of variance (MANOVA) procedure. In environmental studies, MANOVA is generally used to compare two or more groups based on their environmental characteristics (response variables). In the context of this report, the grouping variable (influent vs. effluent) was assessed by analyses of multiple response variables (physicochemical parameters and micronutrients). The comparison of the two groups in a MANOVA is similar to a multivariate t-test of Hotelling's $T^2$ procedure (Manly 1991). In the MANOVA analysis, the effect of the group variable is assessed through the use of the Wilks' Lambda statistic (Seeber 1984). In addition to the determination of Wilks' Lambda, a series of F-tests were performed on each dependent variable to understand the source of variability between the two groups. For example, if a significant difference is found between two groups, the F-tests provide information on the variables responsible for the difference. A confidence level of $\alpha = 0.05$ was chosen for this test. Results of this procedure are presented in Section 4.3. Because several parameters had multiple nondetect results (e.g. nitrite), a minimum of eight observations out of the total of 10 were required for the MANOVA analysis. Those with three or more nondetects (greater than 20 percent) were not considered in the procedure.

#### 3.2.7.2 <u>Linear Regression and Trend Analysis</u>

Regression analysis is a common statistical technique that allows the assessment of the relationship between a dependent quantitative variable ($x$) and one or more other independent variables ($y$).

One of the key applications of this method for the current document is the tracking of EDB concentrations over time for a given well. Visually, a plot of EDB versus time

provides a rough depiction of temporal contamination trends. Applying a linear regression, or "line-of-best-fit," to those data allows one to quantify the variable relationship. This line is defined by the linear equation:

$$y = mx + b,$$

where *b* is the *y*-intercept.

For example, regressing EDB (*y*) against time (*x*) supplies a coefficient (i.e., the slope; *m*) that can be used as an index of chemical change. A possible slope could be -0.1 µg EDB/L/day (micrograms of ethylene dibromide per liter per day) indicating that EDB has, on average, decreased by 0.1 µg/L per day for the time period included in the analysis. In a sense, this is the simplest of models because it allows one to predict future concentrations of EDB at a particular well, and identifies wells that might require special remedial attention. Because a linear model may be overly simplistic for use as a predictive tool, the estimated time required for a contaminant to decrease below action levels should not be treated as definitive.

In addition to establishing inter-variable relationships and trends, one can determine the strength of a regression by performing correlation analyses.

#### 3.2.7.3 Variable Correlations

A simple test for relationships among several measured environmental variables is the correlation between each possible pair of variables. A "correlation matrix" allows one to identify inter-variable relationships in large environmental datasets by providing an index (r, the correlation coefficient) for each variable pair that indicates how well the two variables correlate. The correlation coefficient is a standardized value that ranges from -1 to 1. A value close to 1 indicates high positive correlation (i.e., high values of one variable indicate or predict high values of the other variable), whereas a value close to -1 indicates a high negative correlation (i.e., high values of one variable indicate or predict

low values of the other variable).  A correlation coefficient near zero indicates that the two variables show little or no correlation.

Statistical significance of the correlations was tested using simple student *t*-tests (Rohlf and Sokal 1994).  For example, at the 1 percent level of significance, a correlation that considers 120 paired comparisons (N-2 = 118 degrees of freedom) must be greater than 0.233 to be considered significant.  Typically the 5 percent level of significance is used. In a case such as this where several variable comparisons are being made, the chance of making a type I error (i.e., concluding that a significant correlation exists when it was actually caused by chance) increases, so testing at the one percent level ($\alpha$ = 0.01) is more suitable here.  The test for significance of r-values used the following formula:

$$t = \frac{r\sqrt{N-2}}{\sqrt{1-r^2}} \ ,$$

where N is the number of pairwise comparisons and r is the correlation coefficient.

Standard tables were used to obtain two-tailed critical *t*-values (Rohlf and Sokal 1994).

### 3.2.7.4 Multivariate Correlations

An integrated multivariate investigation was used provide an overall picture of contaminant trends in the FS-12 groundwater plume.  Unlike the series of independent comparisons involved in constructing a correlation matrix, a multivariate investigation compares several variables in a single analysis with the goal of isolating trends in a complex environmental dataset.

In the case of the FS-12 plume, a couple of questions needed to be answered: "Do identifiable contaminant trends exist in the plume?" and "Can the wells be grouped geographically based on types and concentrations of contaminants?"  Initial screening of 2000 data identified high concentrations of potential contaminant analytes, including iron, manganese and toluene.  Multivariate methods were applied also to address the distribution of these analytes relative to the EDB plume.  Based on the structure of these

environmental data, several multivariate techniques can be selected (Manly 1991). Principal components analysis (PCA) was deemed the most appropriate for the investigation of trends in the FS-12 plume.

PCA, like the statistically similar factor analysis, is an exploratory multivariable method that can be used to explain the relationships among several variables. In the case of the current study, a two-way table of monitoring wells (rows) and their corresponding groundwater parameters (columns) was examined. In the simplest sense, the PCA method arranges the sites and environmental variables in multidimensional space. PCA captures variability through the use of eigenvectors, which define linear factors that capture the maximum variability (i.e., environmental gradients) in a multivariate data set. PCA calculations result in clustering of sites (wells) based on their environmental similarity. In such an analysis, samples that occur close together have similar environmental characteristics, and samples that plot far apart are environmentally different. Likewise, environmental variables that lie close together are often positively correlated, and samples that lie near a specific variable tend to be "high" in that variable, and lower in others. PCA is particularly useful because it can provide a visual assessment of a large matrix of complex data by displaying relationships among variables and sites. PCA is particularly suited to the current investigation because it allows the large environmental data set to be distilled into a single explanatory figure that can summarize the relationships among sites (monitoring wells) and chemical trends in the FS-12 plume.

The PCA method extracts "principal components," also known as "factors" that explain variation in the data. The first axis explains the greatest amount of variance (i.e., has the highest eigen value). The second axis captures the second most important amount of variance orthogonal to the first axis. The third axis is orthogonal to the first two axes, and it captures the next most important component of the remaining variance. If desired, PCA calculations may continue until only random variation remains, but in most environmental data sets, four or fewer axes often explain most, if not all, of the nonrandom variation. Although PCA distributes environmental data in n-space, only two dimensions can be adequately presented in a manuscript, so here we focus on the first two

principal axes (eigenvectors), which explain most of the environmental variation in a given data set.

For the FS-12 plume, PCA was performed on organic contaminant and metals measurements from 91 sites (i.e., discrete well screens). Measurements that were below detection limits were replaced with a miniscule value (0.00001), and during PCA calculations, the data were log-linearly transformed to reduce the influence of these low values on the data set as a whole. The first two factor axes extracted from PCA were plotted to investigate environmental characteristics in the plume. The interpretation of these axes provided evidence of interrelationships between plume constituents and geographic locations.

(intentionally blank)

## 4.0 TREATMENT PLANT PERFORMANCE MONITORING

The performance of the FS-12 treatment plant was assessed by the following operational parameters: (1) maintenance of extraction and reinjection flow rates, (2) treatment effectiveness, (3) mass removal rate, and (4) effluent physicochemical parameters. The maintenance of flow rates, treatment efficiency, and mass removal for 2000 monitoring are discussed in this section. The treatment plant's direct impact on water quality is determined by the influent and effluent field parameters and physicochemical parameters.

### 4.1 TREATMENT EFFECTIVENESS

Daily average flow rates for each extraction and reinjection well were averaged on a weekly basis, and the corresponding average was compared against design flow rates for the year 2000 as a percentage of the design flow rate (Table 4-1).

On 02 June 2000, extraction wells 90EW0006 and 90EW0010 were taken off-line. The purpose of shutting down these two extraction wells was (1) to increase the capture zone of contamination on the western side of the FS-12 plume and under Snake Pond (FS-12 plumelet) and (2) to optimize the FS-12 system by shutting off extraction wells where mass removal was minimal or nonexistent. Groundwater to other extraction wells was increased according to the Scenario 24 model (AFCEE 2000e). In Table 4-1 under the extraction and reinjection well location, the design rate prior to 02 June 2000 is listed in the column heading on the left, and the design rate after 02 June 2000 is listed on the right, with the exception of reinjection wells 90RIW0005-09, which were taken off-line 25 July 2000.

From 01 January 2000 to 02 June 2000, the extraction wellfield performed at greater than 94 percent of the individual design rates (Table 4-1). From 03 June 2000 to 31 December 2000, declining performance was noted in several extraction wells. Extraction wells 90EW0011, 90EW0012, 90EW0014, 90EW0015, and 90EW0018 had notable drops in performance during the second half of 2000. Decreased performance of wells 90EW0011, 90EW0012, 90EW0014, and 90EW0015 was attributed to biofouling after

inspection in September 2000. Extraction wells 90EW0011, 90EW0012, 90EW0014, and 90EW0015 were maintained during February and March 2001 to ensure they would operate as designed. The declining performance of extraction well 90EW0018 is indicative of declining performance of the pump and motor. Pump and motor replacement was performed in May 2001.

On 25 July 2000, reinjection wells 90RIW0005 through 90RIW0009 were taken off-line, and on 14 November 2000, reinjection well 90RIW0010 was taken off-line. The purpose of shutting down these six reinjection wells was to reduce the reinjection stress and increase the capture zone on the west side of the FS-12 plume (to address the FS-12 plumelet). The groundwater normally reinjected from these six reinjection wells was diverted to other reinjection wells according to the Scenario 24 model (AFCEE 2000e).

The performance of the reinjection wells was mixed. Most of the reinjection wells exceeded 85 percent of their respective design rates during the period 01 January 2000 to 25 July 2000. Exceptions included reinjection wells 90RIW0005, 90RIW0006, and 90RIW0023. It is not known at this time why these reinjection wells were underperforming. Several reinjection wells were overperforming compared to their design rates to compensate for low flow conditions at the three aforementioned wells. It is believed there was an imbalance of flow to these reinjection wells.

Reinjection flow recorded at reinjection wells 90RIW0028, 90RIW0029, and 90RIW0030 during the year 2000 was well below design rates. Under Scenario 24, these three reinjection wells were to receive flows of 70, 75, and 75 gpm, respectively. These three reinjection wells received little flow until the end of December 2000. This flow deficit was attributed to the hydraulics of the reinjection pipeline and a software problem at the FS-12 treatment plant. Based on design flow rates and actual flow rate averages recorded at reinjection wells 90RIW0018, 90RIW0020, 90RIW0021, 90RIW0022, 90RIW0023, 90RIW0024, 90RIW0025, 90RIW0026, and 90RIW0027, it appears these reinjection wells were receiving the flow intended for reinjection wells 90RIW0028, 90RIW0029, and 90RIW0030 (Table 4-1). Computer control upgrades to the FS-12

treatment plant re-established flow to these reinjection wells in early 2001 to near design rates.

The average operating conditions for each extraction and reinjection well were simulated using groundwater modeling to assess potential impacts on capture performance. The modeling of 2000 conditions indicated that although there was little to no flow to reinjection wells 90RIW0028 – 90RIW0030 and several reinjection wells received much of this intended flow, the average operating conditions for 2000 were sufficient for plume capture. A visual inspection and a specific capacity test were conducted on all the reinjection wells in September 2000, and these tests indicated that the specific capacities were satisfactory to achieve desired design flow rates.

### 4.1.1 Treatment Plant Sampling

Process water (influent) sampling was conducted monthly for EDB and benzene (Table 4-2, Figure 1-4). Solids (total and dissolved), total iron, and total manganese were sampled to guide treatment plant operational decisions. Field parameters were measured for use in the direct impact monitoring program.

The influent EDB concentrations in 2000 ranged from 2.96 µg/L (31 October 2000) to 5.76 µg/L (05 January 2000) with an average of 4.01 µg/L in 2000. Since the FS-12 ETR system began operating, the influent concentrations of EDB and benzene have decreased (AFCEE 2001c, 1999a, 1999c, 1998f, and 1998h). Benzene concentrations were nondetect in the influent through 2000. Due to the absence of benzene in the influent, it appears that benzene in the plume near the extraction wells has decreased relative to EDB.

There were several carbon exchanges in 2000 because of detections of EDB in the lead carbon vessels. Carbon exchanges were performed for GAC unit 101B on 31 March 2000, 103B on 03 May 2000, 101A on 16 August, and 103A on 18 August 2000 (Table 4-2). EDB was not detected in the plant effluent. The FS-12 treatment plant was

effective in removing EDB to nondetect concentrations before discharging the treated water (effluent) to the environment.

### 4.1.2 Mass Removal

The COC mass removed from the FS-12 plume, determined by the treatment plant influent and effluent concentrations and average extraction well flow rates from 1997 through 2000, indicates that contaminant mass removal rates have declined. The system performance relative to mass removal has stabilized and reached a low removal capability. In general, the core of the plume has been removed from the aquifer, and average plume concentrations have declined. This is supported by (1) decreasing plant influent concentrations, (2) decreasing concentration trends in monitoring wells in the core of the plume, and (3) groundwater modeling results that suggest that groundwater from outside the plume margins should now be arriving at selected extraction wells (AFCEE 2001c). Due to changes in the distribution of EDB, the mass of EDB in the plume and the effectiveness of capture and treatment, the system mass removal rate should continue to decline over time until the residual COC concentrations are below the MMCL.

The FS-12 ETR system removed approximately 13.4 pounds of EDB during 2000, yielding a system lifetime cumulative mass removal of approximately 120 pounds from system start-up in September 1997 through December 2000. If the new design-basis EDB plume mass of 225 pounds is compared to the mass removed to date (approximately 120.4 pounds), this represents approximately a 53 percent removal of EDB. The discrepancy between these two EDB removal percentages (96 versus 53 percent) probably indicates that the new design-basis plume shell (Appendix I) also overestimates the FS-12 EDB mass present at system start-up. In addition, the design-basis plume shell and mass was based on data collected from 10 March 1993 through 27 May 1997. There was the opportunity for some dispersion and decay before the treatment system was started on 18 September 1997. This dispersion and decay would not be reflected in the extracted mass accounted for by the FS-12 treatment system. However, it is likely that substantially more mass has either been removed, dispersed, or

decayed over the course of more than three years of operation than the 53 percent estimate indicates.

The benzene plume shell basis of design contained approximately 904.3 pounds of benzene, and the current plume contains approximately 58.4 pounds of benzene. The decrease in mass since the original prediction is partially attributed to benzene removal and attenuation processes. However, we believe the original (design) benzene mass was overestimated because current estimates of plume mass are based on more thorough data collection and refined methods of three-dimensional plume mapping and mass estimating. Furthermore, the benzene design basis data set used sampling dates from 10 March 1993 to 27 May 1997, so there had been opportunity for some dispersion and decay before the treatment system was started on 18 September 1997. The estimated total benzene removed since system start-up remains at approximately 71.7 pounds.

## 4.2 WELLFIELD MAINTENANCE

Inspections were performed on all FS-12 extraction and reinjection wells during September and October 2000 (Table 4-4). The purpose was to ensure that the FS-12 wellfield was performing as designed. Based on biological activity, specific capacity, and pump performance tests, extraction wells 90EW0007, 90EW0008, 90EW0009, 90EW0011, 90EW0012, 90EW0014, 90EW0015, 90EW0016, and 90EW0027 were maintained between January and April 2001 to ensure that they continued to operate as designed. Based on specific capacity tests, maintenance was not required for any of the FS-12 reinjection wells currently operating.

## 4.3 TREATMENT PLANT DIRECT IMPACT MONITORING

The method for assessing the influence of the treatment plant on groundwater physicochemical parameters was modified in August 2000. Until August 2000, upgradient monitoring wells were part of the direct impact monitoring program (Table 4-5). However, in August 2000, a recommendation was made to assess direct impacts of the plant by a comparison of plant influent to plant effluent. The original analysis was a

comparison of three upgradient wells to plant effluent as documented in previous reports. The characteristics of the plant influent were determined by analyzing a composite of these three upgradient wells. The advantages to the new analysis, plant influent to effluent comparison, are (1) the elimination of sources of error and uncertainty and (2) a more balanced statistical design. A composite of upgradient monitoring wells, intended to characterize treatment plant influent, was problematic. The source of variation in these upgradient wells was great, and the representativeness of these groundwater samples with regard to plant influent was questionable. The comparison of influent to effluent helps identify changes in groundwater chemistry as those that are directly attributable to the treatment plant. Because of this monitoring change, only those direct impact monitoring samples collected since August 2000 were included in the plant direct impact monitoring analysis.

The results of the plant direct impact monitoring demonstrated that there were no significant differences between the treatment plant influent and effluent. The MANOVA test for the physicochemical parameters and field parameters also showed no significant differences between the plant influent and effluent (Table 4-6). Wilks' Lambda scores of 0.159 for physicochemical parameters and 0.264 were sufficiently large to denote no significant difference at the 0.05 decision level.

F-tests were performed for all of the field parameters and a selected number of physicochemical parameters. None of the field parameters showed any significant difference between the plant influent and effluent (Table 4-6). Past direct impact monitoring studies showed significant increases in pH, DO, and significant decreases in temperature plant effluent in comparison to upgradient groundwater (AFCEE 2001c). This was interpreted as a potential effect that the treatment system was having on these parameters. The modification of the direct impact monitoring analysis has yielded results that are more reasonable than in past analyses. There were five physicochemical parameters that had sufficient data to perform the MANOVA procedure. These were alkalinity, total nitrogen, nitrate, total phosphorus, and orthophosphate. Of all of these physicochemical parameters, only alkalinity was deemed significantly different. The

mean alkalinity of the plant effluent (16.5 milligrams per liter [mg/L]) was almost twice that of the mean alkalinity concentration in the plant influent (8.75 mg/L).

Plant direct impact monitoring has replaced the ecological impact monitoring for the FS-12 SPEIM program. In December 2000, it was decided that the assessment of physicochemical parameters at the plant was a better measure of impacts of the treatment system on neighboring ecosystems than the previous ecological impact monitoring program (Appendix B). Much of the ecological impact monitoring program was designed to assess effects of the treatment system on neighboring ecosystems through analysis of physicochemical parameters in groundwater and surface water. The analysis presented in this report is the first important step in assessing true treatment system effects. Past studies have demonstrated that the treatment system was having very limited effect on its neighboring ecosystems (Appendix E of AFCEE 2001d). The direct impact monitoring results for 2000 in this annual report support this position without the extensive ecosystem monitoring that was conducted in past assessments.

(intentionally blank)

# 5.0 REMEDIAL SYSTEM IMPACT MONITORING RESULTS

The FS-12 ETR system includes 14 axial extraction wells within the FS-12 plume and 11 extraction wells in a fence perpendicular to groundwater flow at the southern edge of the plume (Figure 1-3). Sections 5.1 through 5.4 discuss the results of hydraulic monitoring and the associated hydraulic impacts, if any, of the extraction and reinjection of treated water. Sections 5.5 through 5.8 discuss monitoring of the FS-12 plume along with groundwater and surface water chemistry.

## 5.1 HYDRAULIC MONITORING

Groundwater elevations were measured quarterly in the SPEIM hydraulic monitoring network in March, May, September, and December 2000 (Table 5-1). Table 5-1 also includes baseline groundwater elevations measured on 04 September 1997. As discussed in Section 4.1, operational flow rates were modified during June and July to more closely represent those specified in model Scenario 24. Prior to June 2000, the rate of extraction from the aquifer was approximately the design rate (782 gpm). After the July 2000 modification to operational flow rates, the rate of extraction from the aquifer was approximately 768 gpm. No extreme precipitation events were noted prior to the four water level measurement events (Figure 5-1).

Figure 5-2 shows the natural changes in groundwater elevation throughout the year 2000 annual monitoring period. The data for the staff gauge in Snake Pond are incomplete since the gauges are removed due to freezing and thawing of the pond during winter. Figure 5-3 shows hydrographs for the SPEIM hydraulic monitoring locations. Several monitoring wells were selected to represent background conditions in the FS-12 area so that natural groundwater elevation variations unrelated to groundwater extraction or reinjection activities could be determined. These wells include 90MW0070, 90MW0007, 90MW0019, 90MW0021, 90MW0036, and 90MW0054 (Figure 3-1). These monitoring wells are all located near the edge of the zone of influence of the FS-12 ETR system and are the most suitable locations to serve as indicators of natural groundwater trends in the area. Annual fluctuations in groundwater elevations are typically less than one foot.

Because drawdown and mounding of groundwater around the FS-12 ETR system are generally less than 0.4 foot, head differences due to natural fluctuations in groundwater elevation may obscure observed drawdown at long time intervals from the beginning of pumping.

Groundwater elevations in background monitoring wells and the surface water elevation of Snake Pond indicate similar trends. This is shown on hydrographs for background monitoring wells and the Snake Pond staff gauge (Figure 5-2). Because of the low precipitation in 1999 (Figure 5-1), the local groundwater elevation and surface water elevation in Snake Pond continuously dropped from the summer of 1998 through December 1999. This decreasing trend in groundwater elevations of approximately 3.5 feet over year 1999 is evident on Figure 5-2. Groundwater elevations declined at a lower rate in year 2000 with the average decline being less than 1.5 feet for the entire year in the background monitoring wells. Similar tends also are evident in monitoring wells within the hydraulic influence of the FS-12 ETR system. The hydrographs for selected monitoring wells are presented in Figure 5-3.

### 5.1.1 Groundwater Flow Direction

Equipotential contours developed from the 04 September 1997 baseline data and the March, May, September and December 2000 groundwater elevation measurements obtained from monitoring wells are presented in Figures 5-4, 5-5, 5-6, 5-7 and 5-8, respectively. Groundwater elevations in extraction and reinjection wells were not used in the analysis. Consequently the figures do not portray maximum and minimum levels due to drawdown and mounding. Extraction and reinjection wells are not used in the analysis because gradients can be incorrectly calculated over distances where the slope of the water table is nonlinear near extraction or reinjection centers. The monitoring wells used to develop these groundwater elevation contours are generally screened in the C, D and E intervals, which are from +20 ft msl to -40 ft msl (Table 5-1). These elevations correspond with the vertical center of the plume and the elevation of the extraction well screens. Hydraulic stresses exerted by the extraction wells are the greatest in this elevation range.

The groundwater elevation contours developed from the baseline (September 1997) groundwater elevations indicate that the ambient groundwater flow direction is generally to the south-southeast in the upgradient areas, with a gradual shift towards the southeast at the downgradient end of the FS-12 plume (Figure 5-4). Given the relative homogeneity of the stratigraphy in the area, the absence of laterally continuous confining layers, and the natural gradient of the land surface, the groundwater flow directions at all elevations are generally to the south and southeast. However, groundwater flow deeper within the aquifer is less influenced by Snake Pond than groundwater flow shallower within the aquifer. Extraction stress along the axis of the plume has resulted in a slight realignment of groundwater flow north of Snake Pond to the east-southeast toward the center of the axial fence. This is illustrated by comparing groundwater contours for baseline (Figure 5-4) and operational conditions (Figures 5-5 through 5-8).

Groundwater elevation contours developed from the March, May, September and December 2000 data indicate that groundwater flow was generally to the south-southeast, toward the FS-12 ETR system (Figures 5-5 through 5-8). However, extraction at the axial wells has resulted in the creation of a trough where groundwater flow gradients show converging flow toward the axis. Compared to the baseline contours, these gradient changes, in general, extend to the periphery of the FS-12 plume. The spacing and orientation of the operational groundwater elevation contours differ most notably from that of the baseline groundwater elevation contours close to the extraction and reinjection wells. The primary difference in the four operational water tables is the higher mounding along the western section of the southern fence in the September and December data, reflecting the increased flow rates for the reinjection wells in this area during the second half of 2000.

### 5.1.2 Horizontal Hydraulic Gradients

Horizontal hydraulic gradients are defined as a change in piezometric head of the groundwater per unit of horizontal distance, in this case feet per foot (ft/ft). Horizontal gradients provide an indication of the potential for groundwater flow and a qualitative measure of the influence of the operation of the FS-12 ETR system on groundwater flow.

Groundwater elevations in monitoring wells in the center of the FS-12 plume, aligned in the direction of groundwater flow, were used to calculate baseline horizontal gradients. Most of these monitoring wells are in the C and D intervals (+20 ft msl to -20 ft msl) coincident with the greatest extraction stress. Horizontal gradients have been calculated between the following monitoring well pairs: 90MW0019 and 90MW0003, 90MW0003 and 90MW0025, 90MW0025 and 90MW0082A, 90MW0082A and 90MW0066A, 90MW0066A and 90JB0001C, and 90MW0019 and 90JB0001C. Gradients less than 0.01 ft/ft are considered estimated because of the limits of measurement precision.

The horizontal gradient representative of baseline conditions (04 September 1997) was determined along a line approximately parallel to the orientation of the FS-12 plume and groundwater flow direction (Figure 5-9). The baseline horizontal gradient along the line that connects monitoring wells 90MW0019 and 90JB0001C was 0.0007 ft/ft. The magnitude of the horizontal gradient along the line varied from 0.0001 to 0.0019 ft/ft during 2000 (Figure 5-10).

In general, horizontal gradients calculated for all selected monitoring well pairs using year 2000 data resemble those recorded during previous operational periods. The location of local recharge (and more importantly the top of the mound) and discharge areas (Snake Pond and Wakeby and Mashpee ponds), and seasonal fluctuations in groundwater elevations primarily determine the horizontal gradients in the vicinity of the FS-12 ETR system. The passive FS-12 ETR system significantly affects horizontal gradients and groundwater flow only in close proximity to the extraction and reinjection wells. Outside the zone of influence, gradients remain unchanged.

Minor changes in horizontal gradients were observed in 2000 as compared to previous operating conditions. For purposes of evaluation in this report, positive gradients indicate potential for southerly flow whereas negative gradients indicate potential for northerly flow. Horizontal gradients north of the southern extraction fence ranged from 0.0002 ft/ft to 0.001 ft/ft, with the strongest gradients occurring between well pairs 90MW0019 and 90MW0003, and 90MW0066A and 90JB0001C. During the year 2000, the horizontal

gradients between well pairs 90MW0019 and 90MW0003, 90MW0003 and 90MW0025, and 90MW0025 and 90MW0082A were similar to 1998 and 1999 operating conditions.

As described in the 1999 FS-12 annual report, it is believed that the slightly elevated groundwater elevations at monitoring well 90MW0066A are due to less conductive sands in the aquifer near this portion of the reinjection fence. Greater variability in horizontal gradients near this monitoring well are anticipated (if, for example, reinjection flow rates vary) due to lower hydraulic conductivity in the vicinity of the monitoring well.

During 2000, the gradient between monitoring well pairs 90MW0066A and 90JB0001A was greater than that recorded in 1998. This is likely due to a more pronounced observed aquifer stress in the vicinity of the extraction and reinjection fence due to low groundwater elevations. The data suggest that the operation of the passive FS-12 ETR system significantly affects the horizontal gradients and groundwater flow only in close proximity to the extraction and reinjection wells. Outside the zone of influence, gradients remain unchanged.

### 5.1.3 Vertical Hydraulic Gradients

Vertical gradients are defined as a change in piezometric head of the groundwater per unit of vertical distance, in this case ft/ft. Vertical gradients are calculated by dividing the change in groundwater piezometric head by the difference in elevation between two monitoring well screens in a monitoring well cluster. Monitoring well screens used for calculation of vertical gradients were in close lateral proximity so that changes in head due to horizontal gradients between monitoring wells are negligible. Increasing piezometric head with depth indicates a potential for the upward movement of groundwater and is considered to be a positive gradient. Baseline gradients from each monitoring well cluster are compared with the data from the monitoring period to determine what impact the FS-12 ETR system has on the potential vertical movement of the groundwater. Vertical gradients measured during pumping may be used to indicate a potential for vertical capture of a plume by a nearby extraction well.

The magnitude of the induced vertical gradient at each location is likely to be controlled by a number of factors, including the horizontal and vertical separation of monitoring and extraction wells (overlap of screen interval), and geologic and hydraulic heterogeneity close to each monitoring and extraction well.  For example, the presence of semi-confining layers of low permeability may inhibit or accentuate the development of vertical gradients.  The horizontal and vertical gradients created by the FS-12 ETR system are often so small that they are on the same order of magnitude as the error inherent in the measurement tool (0.01 foot).  Gradients less than 0.01 ft/ft are considered estimated because of the limits of measurement precision.

The monitoring wells used to calculate vertical gradients are the same well pairs used in previous assessments (Figure 5-11).  The monitoring well pairs 90MW0015/90MW0011 and 90MW0010/90MW0011 are located close to the eastern side of Snake Pond and the western reinjection fence.  The monitoring wells are screened near the top portion of the reinjection well screens.  Consistent with previous assessments, vertical gradients calculated from groundwater elevation measurements in monitoring wells screened adjacent to the reinjection well screens are somewhat ambiguous.  The monitoring well pairs with screens above reinjection well screen intervals do not consistently demonstrate upward gradients, and the monitoring well pairs situated below the reinjection well screen intervals do not consistently demonstrate downward gradients.  This behavior occurs both before and after the transition to Scenario 24 operating conditions, when reinjection along the eastern side of Snake Pond is shut off.  It is likely that these ambiguities arise from local heterogeneity within the recharged aquifer.  In addition, transient fluctuations in Snake Pond elevations due to recharge events and variability in reinjection flow rates complicate the vertical gradients established in this area.

The vertical gradients between monitoring wells 90MW0027 and 90MW0048 have been generally upward to zero (no vertical flow potential) since system start-up (September 1997).  These monitoring wells are situated east of the western reinjection well fence and west of the southern limit of the axial extraction fence.  Reinjection and extraction stresses are minimal in this area.  The reduced reinjection stress for the second half of

2000 had little effect on these measured gradients. Variability observed in vertical gradients at these monitoring well locations supports the hypothesis made in the baseline PME report (AFCEE 1999b) that vertical gradients at this location are seasonally controlled.

Monitoring wells 90MW0053, 90MW0055, 90MW0082A, and 90MW0082B are located within the southern toe extraction fence area (Figure 3-1). As shown in Figure 5-11, year 2000 data generally correlate with past operational data sets. Monitoring well pair 90MW0082A/90MW0082B is screened near the water table and above the screened interval of the adjacent southern toe extraction wells. The consistent downward vertical gradient observed at this location during FS-12 ETR system operation in 1999 has continued through 2000. Monitoring well pair 90MW0053/90MW0055 is screened below the screened interval of nearby southern toe extraction wells. A consistent upward gradient was observed between this monitoring well pair. An upward vertical gradient was also observed for monitoring well pair 90MW0053/90MW0082A. The screen location for these monitoring well pairs suggests potential vertical capture as deep as -73 ft msl in the area near extraction wells 90EW0024 through 90EW0026. This depth is below the bottom of the FS-12 plume. Little change in the overall trends of these gradients are noted before and after the modification of pumping rate (change to Scenario 24 flow rates) in mid-2000. Of all the vertical gradients assessed, the data at these three monitoring wells provide the clearest indication of extraction fence performance.

Monitoring wells 90MW0083, 90MW0066 and 90MW0066A are located downgradient of the reinjection fence in the FS-12 plume (Figure 1-3). The groundwater flow in this area of the reinjection fence is expected to be the opposite of the conditions encountered near the southern extraction fence. Therefore, flow out of the reinjection well is expected to have a downward vertical component beneath the reinjection well screen and an upward vertical component above the reinjection well screen. As with the extraction wells, these effects are impacted by local aquifer hydraulic properties, and the effects diminish with distance from the reinjection wells.

The vertical gradient recorded between monitoring wells 90MW0083 and 90MW0066A has been very slightly downward, with the exception of the 25 June 1999 measurement (Figure 5-11). These gradients suggest that the influence of the reinjection at this depth in the aquifer (90MW0066A is screened from -7.5 to -12.59 ft msl) is less influential than regional fluctuations in water levels. Each of these vertical gradients appears to result from slightly increased groundwater elevations at monitoring well 90MW0066.

Previous data have documented that aquifer response to system stresses has not varied over time and that the FS-12 ETR system is performing as designed under the relatively high (1998) and low/normal (1993 and 1999/2000) groundwater elevations observed and tested in the groundwater flow model (AFCEE 1999a, 2000e, 2001c).

## 5.2 MODELING OF FS-12 YEAR 2000 CONDITIONS

After implementation of Scenario 24 flow rates in July 2000, actual operational rates did not match Scenario 24 rates because the original treatment system design parameters were different than those required for Scenario 24. To examine the possible effects of the different flow rates on system performance, an additional model run was completed using the average operating flow rates from July through December 2000. Previous modeling had simulated the average operating condition prior to July 2000.

Particle tracking was conducted within the new model run using the original design basis (developed in 1996) particle seed set as a conservative approach to evaluate system performance. A total of 5589 seeds comprised the original design basis seed set within the main body of the FS-12 plume. Of these, 5586 particles (greater than 99.9 percent) are captured by the extraction wells. Two particles (0.04 percent) travel to Snake Pond, and one particle (0.02 percent) remains uncaptured. The capture statistics support the average operating flow rates. These flow rates achieved the desired effect of plume containment.

Because the FS-12 remedial system was designed to have negligible hydraulic impacts on Snake Pond, its limited hydraulic influence inhibits the effectiveness of analysis through

mapping of hydraulic head and direct analysis of hydraulic gradients. Consequently, a more effective approach is to use the groundwater elevations as calibration targets for a numerical groundwater flow model. The groundwater flow model, which accounts for anisotropy, can be used to predict contaminant capture with particle tracking. Calibration of the groundwater model requires a close match between predicted and observed groundwater elevations. The difference between observed and predicted water levels is stated mathematically as a residual.

As stated previously, operational pumping rates of the FS-12 ETR system changed from design rates during the first half of the year to a variation of Scenario 24 operating rates during the latter half of 2000. Two model runs comprising the average operating condition of the system for the first and second halves of 2000 were completed. A comparison of model-predicted and observed groundwater elevations for March and December 2000 is shown on Figures 5-12 and 5-13, respectively. Model-predicted water levels were scaled by adding 0.45 foot due to higher seasonal heads to obtain a match to a 45 degree line for the observed March 2000 water levels. No scaling of the model-predicted water levels for the second half of 2000 was necessary. Water levels in March, probably slightly above the average groundwater conditions, were considered to represent average December 2000 head conditions. The low residuals indicate that the model is properly calibrated to the hydraulic parameters and that the range of present groundwater elevations conditions are very close to average water levels and to design conditions. Predictions of wellfield capture zones by the model should be accurate due to the low residuals, which represent proper calibration.

## 5.3 OPTIMIZATION OF SYSTEM PERFORMANCE AND CAPTURE OF CONTAMINATION BENEATH SNAKE POND

The FS-12 groundwater model was used to investigate whether alternative remedial system operating conditions could produce a groundwater flow-field that would capture the water associated with the three new EDB contaminant zones (located west of the main FS-12 plume and situated beneath/near Snake Pond) while optimizing system performance within the main body of the plume. A detailed discussion of this is provided

in Appendix F. For convenience, a description and summary are provided here. A total of 22 additional model scenarios (Scenarios 28 – 48) were used to evaluate the performance of the remedial system relative to capture of the three additional zones of contamination and the original basis of design plume. The original design basis seed set was included as a conservative method of evaluating performance, since the actual extent of contamination within the main body of the plume is smaller after three years of system operation. A low hydraulic conductivity layer representing pond sediments at the bottom of Snake Pond was introduced in some of the later model runs (40 – 46, 48) to determine its impact on capture performance, drawdowns and flow regimes in and around Snake Pond. The addition of the low conductivity layer was based on field data collected at Ashumet Pond and modeling of aquifer/pond interaction.

The numerical modeling results indicate that the FS-12 ETR system should be operated with the extraction and reinjection rates specified in Scenario 46. This is based on the capture performance of the system (Figure 5-14) relative to the new zones of contamination identified beneath the pond and the original basis of design seed set along with additional evaluations of potential drawdown and mounding impacts.

Future modeling and monitoring efforts at the FS-12 site will include a comparison of field-measured chemical and hydraulic data with those predicted by the model to verify system performance and determine whether adjustments to system operational parameters are necessary. The elimination of flow to several reinjection wells (90RIW0005 through 90RIW0010) has resulted in more total flow directed to the reinjection wells along the southern fence. The model will be used to examine the impact of this redirected reinjection flow to the southern fence and determine if recirculation between extraction and reinjection wells is hindering capture performance along the southern fence.

## 5.4 REINJECTION IMPACT MONITORING

Groundwater extracted from the FS-12 axial and southern extraction fences is combined as influent to the treatment plant. The treated water is then reinjected into a different portion of the local aquifer through the western and southern reinjection well fences.

In general, the 2000 hydraulic data indicate that hydraulic stresses exerted by the FS-12 ETR system closely resemble those observed since system start-up. These stresses also closely resemble model-predicted stresses based on 1993 conditions (normal/low precipitation conditions) and system shutdown/restart activity data collected in December 1998. The data confirm that the hydraulic impacts of the system, although significant in the area close to the extraction and reinjection fences, do not significantly affect groundwater flow directions or velocities in the vicinity of Snake Pond. Regional flow conditions are not altered by the operation of the system, and there is no indication that Snake Pond water levels are affected by operation of the remedial system.

### 5.5 PLUME MONITORING

The results of the impact monitoring include an assessment of the nature and extent of the FS-12 plume, temporal trends and wellfield effectiveness, the quality of the groundwater that is reinjected into the aquifer, and the quality of water downgradient of the treatment system. The FS-12 ETR system was designed to prevent further migration and to reduce the horizontal and vertical extent of the FS-12 plume. Changes in the geographic distribution and concentration of contaminants are monitored to assess performance of the treatment system. In addition, breakthrough monitoring (i.e., downgradient of the extraction wells) is conducted to determine whether contaminants are migrating through the extraction fence. The investigation of plume dynamics focused primarily on EDB and benzene. Other organic contaminants, including ethylbenzene, toluene and xylenes, are given special consideration in assessments of the source area in the northern section of the plume. Other potential health risks are addressed based on detections of metals in groundwater.

Sections 5.5 and 5.6 discuss the plume primarily in the context of Figures 5-15 through 5-20. Figures 5-15 and 5-16 map the distributions and concentrations of key organic contaminants and metals, respectively. Figure 5-17 is a “bubble plot” that depicts the geographic distribution of long-term EDB trends in the plume. This figure identifies the spatial distribution and magnitude of improvements (green bubbles) in water quality that have occurred since the start-up of the treatment system in September 1997. Red bubbles

identify long-term increases in EDB concentration. Figure 5-18 provides a similar assessment but tracks EDB trends since the most recent 1999 measurements. The intent of this figure was to identify changes that have occurred since the previous annual reporting period. Figures 5-19 and 5-20 provide a more detailed long-term trend analysis for EDB and benzene, respectively, in selected wells. All 2000 data for these analytes are provided in Table 5-2, and descriptive statistics for physicochemical parameters are provided in Table 5-3.

Figures 5-21 through 5-26 depict various cross-sections through the FS-12 plume.

An investigation was conducted for the groundwater monitoring network at FS-12 to determine the number of wells and the sampling frequency that was necessary to characterize the FS-12 plume. This investigation included a spatial and temporal optimization approach to determine the specific monitoring locations required to define the FS-12 plume in terms of EDB distribution. The results of this analysis are presented in Appendix G.

### 5.5.1 Plume Extent

The extent of the FS-12 plume is determined by the distribution of EDB. EDB exhibits the greatest number of MMCL exceedances in the FS-12 area, and the horizontal and vertical range of COC exceedances is maximized for EDB. Benzene also exhibits maximum contaminant level (MCL) exceedances in the plume, but these largely fall within the boundary defined by the 0.02 µg/L MMCL for EDB. Plume extent monitoring determines the horizontal and vertical movement of the plume from the source area to the southern toe extraction fence as well as fluctuations in the contaminant concentrations approaching the extraction fences. Plume extent monitoring wells are used to delineate horizontal and vertical plume dimensions, which are generally depicted by the outermost extent of MMCL exceedances. The monitoring wells are also used to track COC changes as a result of the treatment system as the plume moves through the axial fence and toward the southern toe extraction fence.

#### 5.5.1.1 <u>The Source Area</u>

In April 1999, several monitoring wells were added to the northern portion of the FS-12 plume to assess the trailing edge (source area) in the area of Greenway Road (AFCEE 2001c). In 2000, two of these wells were above MMCLs for EDB (96SV0004 and 96SV0013), delineating the small northern subsection of the plume (Figure 5-15, inset A). This small area is unlike the rest of the FS-12 plume because samples from these wells also exceeded MCLs for toluene (maximum concentration = 14,000 µg/L at 96SV0004, 13 September 2000), and they exhibited notable concentrations, but below MCLs, of ethylbenzene (maximum concentration = 500 µg/L at 96SV0004 and 96SV0006, 20 March and 13 September 2000) and xylenes (maximum concentration = 2,200 µg/L at 96SV0004, 13 September 2000). The high concentrations of benzene, toluene, ethylbenzene and xylenes (BTEX) contaminants in the source area make EDB concentrations barely visible in the pie diagram. The concentration of pollutants depicted in Figure 5-15 reflects the overall level of organic contamination; however, although total organic contaminant concentrations are highest in the source area, the MCLs for BTEX (ethylbenzene = 700 µg/L; toluene = 1,000 µg/L; xylenes = 10,000 µg/L) are much higher than those for EDB.

The contaminant characteristics of the source area groundwater differ from the rest of the FS-12 plume partially as a result of rapid biodegradation of ethylbenzene, toluene and xylenes, resulting in only trace detections of these contaminants further downgradient. More importantly, the mobility of these three organic compounds is low compared to benzene and EDB (Roy and Griffin 1985), so it appears that the FS-12 plume has taken on these spatial variations as a result of differential migration of the COCs that were present in the original fuel spill.

The last 1999 source area measurements were nondetect for EDB, but detections above MMCLs occurred in 2000 (2000 maxima: 0.23 µg/L at 96SV0013, 23 March; 0.28 µg/L at 96SV0004, 20 March). The other source area wells (96SV0006 and 90MW0041) were nondetect for EDB in 2000. Furthermore, wells 96SV0013 and 96SV0004 are in the same general flow path, suggesting that lingering contamination occurs in a relatively

small area around the source. Based on these data, it appears that low-level EDB concentrations may be persistent in groundwater at the source area. Continued monitoring is recommended for this area. A mappable area of low DO concentrations (less than 1.0 µg/L) has been identified in the source area (Figure 5-15). The prevalence of anoxia in the source area is indicative of the higher organic contamination and corresponding active biodegradation. In turn, low oxygen concentrations are probably causing a reduction in aerobic degradation, further contributing to the presence of BTEX in the source area.

#### 5.5.1.2 The Plume Core

The plan-view depiction of the EDB plume, based on 2000 measurements and re-mapping efforts, has been reduced in area since 1999 (Figure 1-3). This reduction is manifested in the detachment of the main body of the plume from the source area. While the new boundary better characterizes the extent of EDB contamination, an MCL exceedance was noted for benzene at well 90MW0001 (34 µg/L, 12 September 2000), which lies outside the EDB boundary between the source area and the main body of the plume (Figure 5-15, inset A). It is possible that a more general plume boundary based on all organic COCs would include the source area and the main body as a single unit. However, all contaminants were below MMCLs in 90MW0019 and 90MW0034, providing the basis for detachment as depicted by the EDB exceedance contour.

Figure 5-15 (inset B) depicts the contamination pattern in the main body of the plume. As expected, benzene concentrations (and associated MCL exceedances) decrease farther south. Benzene has a lower mobility and is more susceptible to biodegradation than EDB. As a result, benzene concentrations exhibit a notable decline downgradient of the main body of the plume, where it is below detection. The southern portion of the plume is predominantly represented by EDB.

#### 5.5.1.3 The Plumelet

MMCL exceedances for EDB outside the western boundary of the FS-12 plume warranted the development of an additional plume boundary, referred to as the FS-12 plumelet. MMCL exceedances (highest concentrations at wells 90MP0059B [0.031 µg/L, 25 October], ECMWSNP02S [0.962 µg/L, 06 April], ECMWSNP02D [1.15 µg/L, 14 March], 90MW0049 [0.020 µg/L, 02 May], 90MP0060A [0.349 µg/L, 06 September] and 90MW0050 [0.030 µg/L, 17 February]) occurred in several wells in the plumelet. The current boundary for the plumelet is shown as three zones because the spatial range of EDB MMCL exceedances was interspersed with wells that were below MMCLs or nondetect for EDB (e.g., 90MW0101A, 90MW0102A). The spatial characterization is further illustrated in cross-section (Figure 5-26). Diffusion sampling in Snake Pond (Appendix E in AFCEE 2000e) was applied in May through August 2000 to determine if EDB was discharging into the northeastern area of the pond. Laboratory analyses did not detect EDB in any of the diffusion samples, indicating that as of 2000 the plumelet was probably not impacting water quality in the pond.

The depictions of the plumelet zones will change over time based on additional data collection. 2001 measurements in this area will aid in the characterization of the plumelet, its relationship to the rest of the FS-12 plume, and temporal trends for EDB.

#### 5.5.1.4 The Southern Toe and Breakthrough

The southernmost section of the plume is characterized largely by analytical results of extraction well sampling at the southern toe fence. The only remaining COC in this area is EDB, and concentrations taper to nondetect toward the southwestern and northeastern extraction wells (Figure 5-15, inset C).

Several wells downgradient of the FS-12 southern toe extraction fence have been monitored to determine if the plume is migrating past the extraction fence. Contaminant monitoring data gathered from these wells are used to determine if any adjustments are needed in the FS-12 ETR system design or rates of extraction to increase capture of

contaminated groundwater. COCs were not detected in any of the wells downgradient of the extraction fence. The FS-12 annual report for 1999 (AFCEE 2001c) noted that monitoring well 90MW0077 contained EDB (maximum 0.014 µg/L, September 1999). This well was nondetect for EDB from December 1999 through December 2000. Based on these data, it appears that EDB that existed downgradient of the southern toe extraction fence at system start-up has been removed, and there is no evidence that contaminants are penetrating the extraction fence. Monitoring at these downgradient wells will continue to assist in assessment of plume capture. Long-term tracking of breakthrough contamination is given further attention in Section 5.5.2.

Toluene was detected south of the southern toe extraction fence (90JB0001D [1 µg/L, 12 December], 90JB0004A [4.1 µg/L, 08 December]) and is indicative of the northernmost portion (upgradient extent) of the J. Braden Thompson plume.

#### 5.5.1.5 <u>Cross-Sectional Distributions</u>

In addition to the plan view illustrations of the FS-12 plume, the plume is also depicted in a set of five cross-sections (A-A', through E-E'). The locations of these cross-sections are presented on a plan-view location map (Figure 5-21) and cross-sections A-A', B-B', C-C', and D-D' are presented on Figures 5-22, 5-23, 5-24, and 5-25, respectively.

With the exception of cross-section E-E' (Figure 5-26), previous versions of these cross-sections were presented in the 1999 annual report for FS-12 (AFCEE 2001c). Cross-section E-E' was added to this report to depict the FS-12 plumelet, which is located outside and to the west of the western boundary of the FS-12 plume (Figure 5-21). The most recent 2000 monitoring well and extraction well influent EDB data are presented on cross-sections A-A' through E-E'.

The vertical distribution of the FS-12 plume appears to have collapsed vertically over the last year. The following areas of the plume exhibited notable changes:

- As presented in cross-section A-A', the northern portion of the plume in the vicinity of extraction well 90EW0010 is thinner than depicted by 1999 groundwater data. In

monitoring well 90MW0003 in 1999, EDB was detected at a concentration of 0.11 µg/L and is now below detection limits for EDB (11 December 2000) (Figure 5-22).

- The southern toe of the plume in the vicinity of extraction well 90EW0019 is thicker than depicted in 1999 (cross-sections A-A' and C-C', Figures 5-22 and 5-24). This change occurred because EDB was detected below detection limits at 90MW0025 during the 1999 sampling period, but was detected at a concentration of 0.12 µg/L on 03 December 2000. This trend is expected because the eastern portion of the core of the plume (the thickest zone) migrates toward the east-central portion of the southern toe fence.
- The plume is thinner than previously depicted along the northwestern portion in the vicinity of monitoring well 90MW0017 (Figure 5-23). In 1999, based on historical data, the FS-12 plume was depicted as being shallower than monitoring well 90MW0017. However, EDB was below detection limits in a 02 May 2000 sample collected from well 90MW0017; therefore, the EDB isocontour has been deepened.
- Based on EDB influent data for the three westernmost toe extraction wells (90EW0020, 90EW0021, and 90EW0022), the EDB MMCL exceedance boundary has been shifted to the east to a location between extraction wells 90EW0022 and 90EW0023 (Figure 5-25).
- The FS-12 plumelet is presented in cross-sections B-B', C-C', and E-E' (Figures 5-23, 5-24, and 5-26). As presented in cross-section E-E', the plumelet is divided into three discrete areas as defined by EDB MMCL exceedances that are separated vertically and laterally. These separate portions of the FS-12 plumelet are also illustrated in plan view (Figure 5-21). These zones have been delineated based on groundwater analytical data, evaluation of hydraulic data, groundwater modeling, and discussions with the regulatory agencies.

Additional information on the three-dimensional depictions of the FS-12 plume is presented in Appendix F and Appendix I.

### 5.5.2 Amelioration Assessment

Analyses described in Section 5.5.1 define recent plume characteristics, but do not provide quantitative, geographical evidence of water quality improvement or degradation. By tracking long-term variations in contaminant concentrations, areas are identified where water quality improvements (i.e., EDB declines) are maximized and conversely, where contaminant concentrations have increased. This method defines “hot spots” where contamination levels may be increasing. It also identifies the regions where contaminant reductions have occurred.

#### 5.5.2.1 Long-Term EDB Tracking

Figure 5-17 illustrates changes in EDB concentrations in the FS-12 plume since system start-up (18 September 1997). EDB trends shown in this figure have been simplified to average changes (i.e., the slope of the line of best fit) over an approximately 3.5-year period. Although the nature of small-scale EDB shifts over this period is lost, Figure 5-17 provides a general representation of EDB trends over a broad geographical area, and more detailed trends for selected wells are illustrated in Figure 5-19. Notable water quality improvements have occurred along the axial extraction fence, with a maximum average EDB change of -0.355 µg/L/day at extraction well 90EW0009. Decreases in EDB concentrations along the axial fence are not surprising because this region represents the core of the plume, and the axial extraction fence is capturing the most highly contaminated water in this area.

The long-term analysis indicates that the southeastern section of the plume has seen the greatest increase in EDB concentrations since system start-up. Increases have been noted at extraction wells 90EW0025 through 90EW0029 as well as monitoring wells 90MW0028 (+0.0036 µg/L/day) and 90MW0053 (+0.0031 µg/L/day) (Figures 5-17 and 5-18). At the western edge of the main plume body, a slight long-term ($+8.224 \times 10^{-6}$ µg/L/day) and short-term ($+2.294 \times 10^{-5}$ µg/L/day) increase in EDB has occurred at extraction well 90EW0007. EDB concentrations at this site are relatively low, but continue to exceed the MMCL. This well is close to the plumelet and therefore, will be a key location for continued sampling for EDB on a semiannual basis. Plume migration over the last five years has been most significant in the area of the eastern portion of the southern toe. These trends are consistent with design model predictions of capture zone development. The eastern half of the southern toe fence captures groundwater from the east-central portion of the plume, east of the capture zone of the axial fence. The eastern periphery of the core of the plume is expected to be captured in the southern toe fence three to seven years after system start-up.

EDB trends since late 1999 (Figure 5-18) are variable in comparison to long-term trends. Because a smaller set of EDB data measurements were used to construct this figure,

inferences are made for regional trends and not for trends in individual wells. Water quality improvements are still the most dramatic along the axial fence; EDB declines have been most significant at 90EW0012 (-0.0968 µg/L/day). In contrast to long-term observations at the eastern wells in the southern toe, recent changes indicate a decrease in EDB concentrations. Only one extraction well in the southern toe (90EW0027) exhibits increasing EDB (+0.0018 µg/L/day) during this period.

Despite a long-term EDB decline at well 90MW0040 in the southern plume core, recent trends indicate that EDB concentrations have been increasing (+0.0462 µg/L/day) at this site. This is expected because the core of the plume is migrating into this area, toward the southern toe extraction fence. A few recent EDB increases are also noted in the plume core (90MW0020, +0.00035 µg/L/day; 90MW0025, +0.00028 µg/L/day), the northern section of the plumelet (90MP0059B, +0.000087 µg/L/day; ECMWSNP02D, +0.00042 µg/L/day) and in the source area (96SV0004, +0.00056 µg/L/day).

All wells downgradient of the southern toe extraction fence have been nondetect since late 1999, providing good evidence of plume containment (Figure 5-18).

A more detailed illustration of contaminant dynamics at selected wells is shown in Figure 5-19. The "bubble map" in Figure 5-17 provides a broad picture of long-term EDB changes, but it should be noted that these values represent averages, standardized by a time unit (days). For example, EDB concentrations in wells downgradient of the extraction system (90MW0064, 90MW0064A, 90MW0068, 90MW0084A, 90MW0066, 90MW0085A) were rapidly reduced in 1997 and 1998, while 1999 and 2000 measurements have been nondetect (Figure 5-19). Although EDB trends in some plume core monitoring wells (e.g., 90MW0028, 90MW0053) indicate a long-term EDB increase, line plots indicate that EDB has been declining during the last year at these sites, and continued monitoring will be used to confirm water quality improvements. EDB declines are evident in most areas of the plume, but long-term line plots substantiate EDB increases in the eastern wells (e.g., 90EW0027, 90EW0028) along the extraction fence.

Long-term EDB trends in treatment plant samples indicate that groundwater treatment has been effective and that the overall contamination in extracted groundwater has declined considerably since 1997. Samples from 90PLT01001 constitute a composite of groundwater influent that has been pumped from the entire extraction network, and 90PLT01053 provides data on the quality of plant effluent, prior to reinjection. Line plots of the results of treatment plant monitoring (Figure 5-19) illustrate the overall EDB decline in influent water and that effluent water has consistently been nondetect.

#### 5.5.2.2 Long-Term Benzene Tracking

Benzene concentrations have been decreasing in all areas where benzene contamination is a concern (Figure 5-20). As noted previously, with the exception of 90MW0001, MCL exceedances for benzene are contained within the boundary defined by the 0.02 µg/L MMCL for EDB. Five extraction wells (90EW0009, 90EW0010, 90EW0014, 90EW0016, 90EW0019) and three monitoring wells (90MW0003, 90MW0005, 90MW0020) had sufficient long-term data to characterize benzene trends in the core of the plume since the start-up of the groundwater treatment system. All of the temporal trends from the plume core show reductions in benzene. For instance, at well 90MW0003, benzene concentrations have declined from greater than 1000 µg/L to below detection limits over the past four years.

Benzene exceedances in monitoring well 90MW0001 occur between the source area and the main body of the plume and therefore, outside of the EDB plume (Figure 3-1). Benzene concentration at this well increased from 27 to 34 µg/L in 2000.

As observed for EDB, plant influent (90PLT01001) and effluent (90PLT01053) monitoring indicates distinct benzene reductions in influent, and consistent reduction of benzene to nondetect during treatment.

## 5.6 GROUNDWATER QUALITY

Table 5-4 provides maximum detected concentrations of analytes that exceed drinking water standards. A more detailed list of all analytes detected can be found in

Appendix E. This section summarizes additional groundwater quality trends and considers analytes not otherwise reported in Section 5.5.

### 5.6.1 Physicochemical Parameters

Table 5-2 includes the YSI and laboratory analyses for all 2000 FS-12 groundwater measurements. Summary statistics for field and physicochemical parameters in surface water are presented Table 5-3. These parameters include alkalinity, total phosphorus, total orthophosphate, ammonia, nitrate, total nitrogen, DOC, TOC, and suspended solids. The major difference in physicochemical parameters noted between areas is the higher total phosphorus, orthophosphate and ammonia concentrations in the upgradient and downgradient wells when compared to reference wells. Reference groundwater samples collected from monitoring wells near Peters and Triangle ponds contained more nitrate and total nitrogen than upgradient and downgradient wells. In general, upgradient wells contained higher concentrations of nutrients than downgradient wells, owing to natural factors (Table 4-5).

### 5.6.2 Correlation Analyses

Intervariable comparisons were made for all possible analyte pairs measured at the FS-12 study area. A correlation matrix was generated to address the following three objectives. First, although correlations are expected within large environmental data sets, the matrix can address the redundancy in the measured variables from the FS-12 region. For example, intercorrelation among nutrient variables can be used to identify a proxy variable (e.g., nitrates) that can be used to explain a larger suite of variables (e.g., nitrites, ammonia and phosphorus). As efforts continue to optimize the sampling network, correlations can be used to determine analytes that contribute little additional information about plume characteristics. Second, correlation provides information about relationships among fuel-related contaminants. For FS-12, this information can be used to identify whether or not organic contaminants are uniformly distributed relative to one another. Third, this analysis will serve as a reference for future investigations. In the future, if a

question arises concerning the relationships among analytes, the correlation matrix can act as a first line of evidence.

Correlation analyses were conducted for 47 environmental variables (Table 5-5) obtained from groundwater quality data collected from 220 well locations since the FS-12 treatment system operation began in 1997. The variables include seven organic compounds, 10 nutrients and nutrient-related measurements, 24 metals, and six physicochemical measurements. In total, 2424 samples (a sample in this context comprises the suite of variables sampled from a single well on a discrete date) were included in correlation investigations among variables. Because only a subset of the 47 variables has generally been sampled on each date for each well, a large amount of null data occurred in the measured data set, so the number of pairwise comparisons in correlation calculations ranged from zero (e.g., molybdenum vs. DOC) to 1676 (e.g., temperature vs. pH). In general, more pairwise comparisons increase the statistical strength of a correlation analysis. If no pairwise comparisons were possible between a particular pair of variables, a correlation coefficient could not be calculated. Furthermore, if either or both variables in a particular comparison contained only nondetect measurements, a correlation analysis was not performed.

Correlation coefficients ("r" values) provide information on the interrelationships that exist among the various measured environmental parameters in the FS-12 plume. Although the current report focuses on 2000 data, data pre-dating 2000 were also included to increase sample sizes and strengthen the understanding of the intervariable relationships.

As is typical in environmental data sets, numerous significant correlations occur in the FS-12 data. Some of the more relevant correlations are discussed. Correlations among metals are further addressed in Section 5.6.4 (Metals).

Some expected correlations occur among nutrient variables. Nitrite and orthophosphate, for example, are highly correlated ($r = 0.94$). However, total nitrogen apparently does not serve as a proxy for other nitrogen-based nutrients (nitrate, nitrite, ammonia). These

findings indicate that some analytes, such as orthophosphate, are redundant, but that others should be considered as independent variables.

Levels of EDB were correlated with other organic hydrocarbons, including 1,2-dichloroethane (1,2-DCA) ($r = 0.61$) and benzene ($r = 0.61$). Also, there is a strong positive correlation in the pairs benzene/1,2-DCA ($r = 0.46$) and toluene/ethylbenzene ($r = 0.72$). Similar spatial distributions of organic contaminants are expected due to shared source area and transport history; however, levels of chloroform are negatively correlated with EDB ($r = -0.14$) and benzene ($r = -0.15$), indicating that chloroform in the FS-12 plume occurs at higher concentrations where EDB tends to be low. Reasons for this distribution are currently unknown.

Some of the correlated contaminant pairs (e.g., ethylbenzene and dissolved iron; $r = 0.80$) probably reflect indirect relationships. In particular, high levels of organic contaminants increase the amount of biodegradation in soils. In turn, this can cause oxygen levels to decrease, thus enabling the mobilization of metals. Metals distributions are given further attention in the next section.

### 5.6.3 Multivariate Ordination and Plume Characterization

To better reveal patterns in the distribution of contaminants and other analytes in the FS-12 plume, all year 2000 sampling locations were included in a multivariate analysis (i.e., a principal components analysis). Although principal components analysis (PCA) is a statistically intensive procedure, some relatively simple questions regarding the spatial/chemical characteristics of the plume were answered. In terms of the questions stated in Section 3.2.7 (Statistical Methods), the following observations were made based on PCA.

The first PCA (Figure 5-27) was intended to investigate patterns in the distribution of organic contaminants in all wells with available 2000 data. Each well is “ordinated” based on its dissimilarity to other wells in terms of organic contaminant composition. The “data centroid” acts as a baseline for all data presented in the factorial biplot. All wells that measured nondetect for all tested analytes occur immediately upon the

centroid, and all other wells radiate outward based on their chemical composition. The first factor of a PCA captures the broadest gradient in a data set. In this case, the PCA-calculated axis 1 summarizes the environmental variables that best explain the variation in well analytical measurements. The first factor (axis 1, ? = 2.61; variance explained = 37.3 percent) captures a gradient of ethylbenzene, toluene and xylenes, and the PCA clearly clusters the source area wells in the direction of these contaminants. Statistically, ethylbenzene, toluene and xylenes are mutually explaining the largest amount of variation in the data, and there is a strong separation of the source area wells from the rest of the plume.

The second factor (? = 1.01; variance explained = 14.4 percent) captures a gradient of benzene and EDB, but because these two contaminants are highly correlated (Table 5-3), this axis does not warrant interpretation. To reduce the effect of the source area wells and clarify further environmental separations in the plume, a second PCA was calculated after removing the source area wells from the data set. The second PCA considered uncorrelated organic contaminants (EDB, ethylbenzene and chloroform) and three metals (iron, manganese and nickel). This analysis was used to determine if certain areas of the plume are characteristically metals- or organic contaminant-dominated or conversely, if the plume area is more evenly contaminated by both organics and metals.

Figure 5-28 depicts the separation of FS-12 well samples based on their metals and organic content. Factor 1 captures a metals gradient, whereas factor 2 largely captured the organic components. This distinct separation reveals that organic materials exclusively contaminate some wells, whereas others are characterized by their metals concentrations. For example, wells 90EW0012 and 90EW0019 are characterized by their EDB content, whereas wells 90MW0033 and 90MW0066 are characterized by iron concentrations. Both metals and organic contamination differentiate several wells in the plume core, such as 90MW0028. Based on this analysis and on geographic distributions of analytes (Figures 5-15 and 5-16), there is also some overlap of EDB-contaminated regions and areas containing high levels of groundwater metals. In brief, wells containing high levels of iron and/or manganese lie both within and outside the EDB

plume, further supporting previous observations that groundwater metals, even those above MCLs, are a natural occurrence at the MMR (AFCEE 1998c). The relationship between EDB and metals represents only a partial overlap and does not indicate a strong correlation between EDB and metals. Metals such as iron and manganese are naturally occurring and do not appear to be strongly linked to organic contamination in the plume.

### 5.6.4 Metals

Figure 5-16 also illustrates that high concentrations of metals occur in the EDB plume, but that metals also occur in regions with no detectable organic contamination. In general, high concentrations of manganese occur in the northwestern section of the FS-12 study region, while iron occurs mainly in the southern section. This trend is probably related to subtle changes in oxidation-reduction conditions along the north-south length of the plume area. In natural aqueous systems, concentrations of ferrous iron ($Fe^{2+}$) are limited not by solubility, but by oxidation to ferric iron ($Fe^{3+}$). Under generally oxidizing conditions, the solubility of ferric iron becomes a function of pH, but not until pH values below approximately 5 standard units are encountered. Manganese (Mn) behaves a bit differently, tending to remain in solution once converted to $Mn^{2+}$ until extremely oxidizing or extremely high pH conditions are encountered. The observed down-plume correlation between decreasing pH, increasing iron, and constant Mn is difficult to explain with any simple conceptual model.

Numerous significant correlations occur among the metals (Table 5-5), which are expected because immobilization properties are similar among most metals found in groundwater (NRC 2000). In particular, the concentration of total mobilized metals in soils is largely determined by factors such as pH, oxidation-reduction conditions, and organic content.

A significant finding in the correlation analysis is the lack of correlation of thallium and mercury with other variables. In 1999, thallium was detected in exceedance of the MCL (2.0 µg/L) near the FS-12 plume (90MW0015, 10.4 µg/L; 90MW0085A, 5.2 µg/L). While thallium was not detected in year 2000 measurements, concern remains regarding

the source of groundwater thallium. It became necessary to determine if thallium and other trace metals were related to anthropogenic pollution, or if these are naturally occurring metals. In the correlation analysis of historical data, it was found that thallium occurs independent of the other 46 analytes considered in the analysis. Mercury, too, is not correlated with the other variables measured at FS-12. Although groundwater metals are often associated with the degradation of fuel contaminants, past detections of thallium and mercury occurred sporadically inside and outside the plume. The findings suggest that these two metals are not related to fuel contamination at FS-12. Both of these metals occur naturally in soils (Bohn et al. 1979), and they are probably a natural component of dissolved minerals in groundwater for this region.

Figure 5-16 clearly depicts the distribution of iron and manganese in the FS-12 region; iron is dominant in the south, and manganese is dominant in the northwest. Of all the analytes tested, manganese had the strongest correlation to oxygen (r = -0.573; Table 5-3) indicating that manganese is favored in the low-oxygen (reducing) regions in the north. Without knowing the detailed ionic properties of these measurements, it is difficult to make conclusions based on “total” metals (Bohn et al. 1979). However, background levels of manganese and iron in MMR groundwater are commonly above 200 and 1000 µg/L respectively (AFCEE 1999b), so it is likely the distribution of these metals in this region is influenced by petrologic characteristics.

Figure 5-16 denotes that a few wells at FS-12 contain measurable concentrations of nickel. The highest concentration of nickel was at well 90MP0060D (328 µg/L, 03 January 2000). More recent nickel concentrations are below the MCL of 100 µg/L, but levels at these wells will be examined in future monitoring to assess potential drinking water risks. Examination of the 90MP0060D construction log indicates that the well screen is composed of polyvinyl chloride, so it is unlikely that nickel detections are an artifact of well construction. Occasional exceedances in levels of aluminum (90MW0003, 90MW0033), antimony (90MW0066) and cadmium (90MW0015) also occurred in 2000 (Table 5-4 and Appendix E).

## 5.7 SURFACE WATER ELEVATIONS

Surface water elevations were recorded monthly from March through November 2000 at Snake, Peters, Triangle and Weeks ponds (Table 5-6). One staff gauge was read at each pond. Water levels in ponds in the FS-12 region (Snake and Weeks ponds) were compared to reference ponds (Peters and Triangle ponds) to determine if fluctuations in surface water elevations have been affected by treatment plant activities (Figures 5-29 and 5-30). Water elevations declined in all ponds throughout 2000, following a trend that has been noted since early 1998. No relationship is noted between elevations and monthly precipitation totals.

Correlation analyses for each potentially impacted-reference pond pair provide very high (and significant) r-values (Figures 5-29 and 5-30). These high correlations indicate that water level fluctuations in potentially impacted ponds closely match fluctuations in reference ponds. In summary, elevations are being controlled by natural factors (e.g., climate and weather), and extraction/reinjection activities are having little or no effect on hydraulics in Snake and Weeks ponds.

## 5.8 SURFACE WATER QUALITY

The surface water bodies that were monitored for chemical properties were Snake (potentially impacted), Peters (reference) and Triangle (reference) ponds. Because of the resolution that treatment plant activities are not impacting physicochemical parameters (e.g., AFCEE 1999b) and the decision to suspend physicochemical monitoring for the FS-12 plume (Appendix B, project note AFC-J23-35U40501-P1-0055), statistical analyses on these data have been greatly reduced from the previous annual report.

Table 5-7 includes the 2000 YSI and laboratory analyses and Secchi depth measurements for the ponds. Summary statistics for field and physicochemical parameters in surface water are presented in Table 5-8. These parameters include alkalinity, total phosphorus, total orthophosphate, ammonia, nitrate, nitrite, total nitrogen, TOC and chlorophyll-*a*. The results generated from 2000 include data from the epilimnion.

The major differences in physicochemical parameters noted between ponds are the higher nitrate, ammonia and organic carbon concentrations in the reference ponds (Peters and Triangle). Triangle Pond had a particularly high level of organic carbon. These high concentrations of nutrients might reflect anthropogenic inputs in the reference ponds, or they could be caused by natural events. In terms of trophic status, Snake Pond appears to have the “best” water quality of the three ponds.

# 6.0 SUMMARY AND CONCLUSIONS

The FS-12 ETR system has been operational for over three years and provides an opportunity to understand what effects a treatment system has on the Sagamore Lens and the nearby ecosystems. The following sections identify the progress and impact of this treatment system based on chemical and hydraulic monitoring of the aquifer and the plant.

## 6.1 TREATMENT PLANT PERFORMANCE MONITORING

A number of modifications were made to the FS-12 ETR system during the course of 2000. Detects above MMCLs of EDB in microwells ECMWSNP02S,D indicated that there was contamination of groundwater below Snake Pond and west of the reinjection fences along the Snake Pond shoreline. On 02 June 2000, extraction wells 90EW0006 and 90EW0010 were turned off to provide additional capacity to the southern axial extraction wells, to help retard the movement of this area of contamination before it reached the western end of the southern toe extraction fence, and to minimize potential discharge of contaminants to Snake Pond. On 25 July 2000, reinjection wells 90RIW0005 though 90RIW0009 were taken off-line to help pull the contamination near and west of these reinjection wells toward the axial fence. On 14 November 2000, reinjection well 90RIW0010 was taken off-line to also enhance extraction stress (by reducing reinjection mounding) and aid in pulling the contamination toward the extraction axial and toe fences. To address long-term capture of contamination below the pond, a design improvement was developed where well 90RIW0010 was converted to an extraction well (90EW0031) (project note AFC-J23-35U40503-P1-0010 issued 14 February 2001). This extraction well was brought on-line 01 June 2001 and will capture the identified area of groundwater contamination below Snake Pond.

In general, the FS-12 ETR system operated consistent with design flow objectives. Extraction flow rates exceeded 94 percent of their respective design rates during 2000. Reinjection flow rates varied throughout the year. Termination of flow to reinjection wells 90RIW0028, 90RIW0029, and 90RIW0030 during the latter half of 2000 resulted

in several reinjection wells receiving more process water than originally designed. Groundwater modeling conducted to assess the hydraulic stresses associated with redistributed reinjection flows demonstrated that the distribution of reinjection flow achieved in 2000 did not adversely affect the performance of the FS-12 ETR system in maintaining plume capture. Computer control upgrades to the FS-12 treatment plant re-established flow to these reinjection wells in early 2001.

The FS-12 ETR system removed approximately 13.4 pounds of EDB during 2000, yielding a system lifetime cumulative mass removal of approximately 120 pounds from system start-up in September 1997 through December 2000. If the new design-basis EDB plume mass of 225 pounds is compared to the mass removed to date (approximately 120.4 pounds), this represents approximately a 53 percent removal of EDB. The discrepancy between these two EDB removal percentages (96 versus 53 percent) probably indicates that the new design-basis plume shell also overestimates the FS-12 EDB mass present at system start-up. In addition, the design-basis plume shell and mass was based on data collected from 10 March 1993 through 27 May 1997. There was the opportunity for some dispersion and decay before the treatment system was started on 18 September 1997. This dispersion and decay would not be reflected in the extracted mass accounted for by the FS-12 treatment system. However, it is likely that substantially more mass has either been removed, dispersed, or decayed over the course of more than three years of operation than the 53 percent estimate indicates.

The benzene plume shell basis of design contained approximately 904.3 pounds of benzene, and the current plume contains approximately 58.4 pounds of benzene. The decrease in mass since the original prediction is partially attributed to benzene removal and attenuation processes. However, we believe the original (design) benzene mass was overestimated because current estimates of plume mass are based on more thorough data collection and refined methods of three-dimensional plume mapping and mass estimating. Furthermore, the benzene design basis data set used sampling dates from 10 March 1993 to 27 May 1997, so there had been opportunity for some dispersion and

decay before the treatment system was started on 18 September 1997. The estimated total benzene removed remains approximately 71.7 pounds.

Direct impact monitoring showed that there was no difference in physicochemical parameters between treatment plant influent and treatment plant effluent, indicating that treatment plant activities were having no notable impact on ecological criteria guidelines.

## 6.2 HYDRAULIC MONITORING

Groundwater elevations in background monitoring wells and the surface water elevation of Snake Pond exhibit good correlation. Because of the low precipitation in 1999, the local groundwater elevation and surface water elevation in Snake Pond continuously dropped from the summer of 1998 through December 1999. This represents a decreasing trend in groundwater elevations of approximately 3.5 feet during 1999. Groundwater elevations declined at a lower rate in 2000 with the average decline being less than 1.5 feet for the entire year in the background monitoring wells. Similar trends were also evident in monitoring wells within the hydraulic influence of the FS-12 ETR system.

Groundwater elevation contours developed from the March, May, September, and December 2000 data indicate that groundwater flow is generally to the south-southeast, toward the FS-12 ETR system. Extraction at the axial wells has resulted in groundwater flow gradients toward those wells. Compared to the baseline contours, these gradient changes, in general, extend to the periphery of the FS-12 plume. The spacing and orientation of the operational groundwater elevation contours differ most notably from that of the baseline groundwater elevation contours close to the extraction and reinjection wells. This supports the interpretation that impacts from the FS-12 ETR system are fairly localized.

The horizontal gradients calculated for all selected monitoring well pairs using 2000 data resemble those recorded after the baseline event. The regional groundwater flow patterns, location of local recharge and discharge areas, and seasonal fluctuations in groundwater elevations primarily determine the horizontal gradients in the vicinity of the

FS-12 ETR system. The passive FS-12 ETR system significantly affects horizontal gradients and groundwater flow only in close proximity to the extraction and reinjections wells. Outside this zone of influence, gradients remain unchanged. Also, there is no indication that the FS-12 system is impacting the groundwater flow trajectory in the source area of the J. Braden Thompson plume.

Assessment of the vertical gradients within the FS-12 monitoring network has demonstrated that aquifer response to system stresses has not varied over time. The FS-12 ETR system is performing as designed under the relatively high (1998) and low/normal (1993 and 1999) groundwater elevations observed and tested in the groundwater flow model.

Operational pumping rates of the FS-12 ETR system changed from design rates during the first half of 2000 to a variation of model Scenario 24 operating rates during the latter half of 2000. Two model runs comprising the average operating condition of the system for the first and second halves of 2000 were completed. Low residuals indicate that the model is properly calibrated to the hydraulic parameters and that the range of present groundwater elevation conditions are very close to average water levels and to design conditions. An additional model run was completed using the average operating flow rates from July through December 2000. Previous modeling had simulated the average operating conditions prior to July 2000. Particle tracking was conducted within the new model run using the original design basis particle seed set as a conservative approach to evaluate system performance. In this scenario, greater than 99.9 percent of the particle seed set was captured by the system.

The numerical modeling results indicate that the FS-12 ETR system should be operated with the extraction and reinjection rates specified in Scenario 46 (operation of 90EW0031 at 95 gpm). This is based on the capture performance of the system relative to the new zones of contamination beneath the pond and the original basis of design seed set along with additional evaluations of potential drawdown and mounding impacts. The 2000 hydraulic data indicate that hydraulic stresses exerted by the FS-12 ETR system closely resemble those observed since system start-up. These stresses also closely resemble

model-predicted stresses based on 1993 conditions (normal/low precipitation conditions) and system shutdown/restart activity data collected in December 1998. The data confirm that the hydraulic impacts of the system, although significant in the area close to the extraction and reinjection fences, do not significantly affect groundwater flow directions or velocities. Regional flow conditions are not altered by the operation of the system, and there is no indication that Snake Pond water levels are affected by operation of the remedial system.

## 6.3 PLUME MONITORING

The FS-12 ETR system continues to be effective in capturing and treating the plume, and the overall magnitude of contamination has been significantly reduced. Contaminant concentrations upgradient of the southern toe extraction fence have been decreased markedly since the introduction of the treatment system, and trends from the year 2000 indicate that the contaminant decline is continuing. A few areas had increasing concentrations as a result of plume migration. Apparently there is no measurable trace of the residual plume front downgradient of the reinjection fence that was left uncaptured after system start-up. With the exception of 90MW0091C (0.0084J µg/L EDB, 15 March 2000), there is no measurable trace of the residual plume front downgradient of the reinjection fence that was left uncaptured after system start-up. Based on the current downgradient monitoring network, breakthrough of organic contamination did not occur in 2000.

The longitudinal and transverse proportions of the FS-12 EDB plume have been reduced. The plume has also fragmented due to the recalcitrance of less mobile compounds in the source area. The plume also exhibits detachment from the source area with a limited zone of residual contamination persisting near the source area. Multivariate analyses of organic and metals contamination indicated that the source area is considerably different from the rest of the plume. The source area shows higher concentrations of BTEX that the rest of the plume. In addition to EDB and benzene, continued monitoring of xylenes, toluene and ethylbenzene should be a focus in the trailing edge of the plume. The source

area is particularly unique because it contains toluene concentrations in exceedance of drinking water standards.

Relatively slow transport, in comparison to EDB and active biodegradation, has hindered the migration of benzene; hence, benzene MCL exceedances occur mainly in the northern section of the plume. A single benzene MCL exceedance occurred outside the updated EDB MMCL boundary, between the source area and the main body of the plume in 90MW0001 at 34 µg/L on 12 September 2000.

Several wells exceeded Massachusetts secondary maximum contaminant levels (SMCLs) for metals such as iron and manganese. Exceedances for metals were measured within the plume as well as outside the EDB plume boundary. The distribution of metals in the FS-12 region shows little relationship to the fuel spill, suggesting that concentrations of metals are primarily a function of mineralogical characteristics.

Surface water elevations for all tested reference and potentially impacted ponds have declined since 1998, indicating that surface water elevation trends are unrelated to system operation.

# 7.0 RECOMMENDATIONS

Recommendations for the FS-12 SPEIM program focus on modifications to the groundwater monitoring program and the hydraulic monitoring network. Most of the modifications for groundwater monitoring regard scaling down the network and sampling frequencies. The present hydraulic network will be modified by implementation of a proposed peripheral monitoring network. This peripheral network will work in concert with a proposed regional monitoring network that spans all of the SPEIM projects on the MMR.

## 7.1 REMEDIAL SYSTEM OPERATIONS

- Restore flow to reinjection wells 90RIW0028 – 90RIW0030 so that reinjection flow rates may more closely match modeling Scenario 24 design flow rates. Note that extraction and reinjection flow rates will be altered when reinjection well 90RIW0010 is converted to extraction well 90EW0031 in June 2001.
- Reassess system performance both chemically and hydraulically when the conversion of reinjection 90RIW0010 to extraction well 90EW0031 is complete. Ensure all wells are performing in anticipation of modifications.
- It is recommended that a one-time shutdown/start-up be included in the system performance assessment. The timing of the shutdown/start-up would be based on data collected during the quarterly hydraulic monitoring conducted at the aforementioned wells. The system shutdown/start-up monitoring would target unusual hydrologic conditions (e.g., extreme drought, high groundwater elevations, changes in regional groundwater flow direction). The modification of the wellfield under Scenario 46, implemented on 01 June 2001, is different from the pumping and reinjection rates established during the design and subsequently modified in 1999. Because the last system shutdown occurred in December 1998 during a period of relatively high water level conditions, a one-time system shutdown will help refine the hydraulic model for FS-12.

## 7.2 IMPACT MONITORING RECOMMENDATIONS

- A spatial and temporal groundwater network optimization performed for FS-12 based on spatial thinning techniques suggests that the following monitoring wells in the FS-12 SPEIM program should be considered for elimination from the monitoring network for EDB (Appendix G): 90JB0001B, 90JB0001D, 90MW0001, 90MW0002, 90MW0003, 90MW0007, 90MW0020, 90MW0027, 90MW0033, 90MW0036, 90MW0041, 90MW0055, 90MW0056, 90MW0066, 90MW0070, 90MW0079A, 90MW0079C, 90MW0081, 90MW0083, 90MW0085B, 90MW0086A, 90MW0086B,

90MW0086D, 90MW0089A, 90MW0091A, 90MW0091B, 90MW0091D, 90MW0091E, 90MW0091F, and ECMWSNP03S. These wells were determined to be spatially redundant relative to the characterization of EDB in the FS-12 plume (Table 7-1). In addition, temporal analysis has determined that a sampling frequency of tri-annually to annually is sufficient for defining the temporal trends of EDB concentrations for the FS-12 monitoring program (Appendix G). It is recommended that the sampling frequency for monitoring of EDB be modified from quarterly to semiannually. Figure 7-1 shows the new EDB monitoring network.

- The FS-12 SPEIM program has addressed the source and occurrence of several metals in the FS-12 plume, particularly iron and manganese. Although a couple of wells have shown exceedances of MCLs in groundwater, most of the monitoring of metals has produced little information other than the occurrence of iron and manganese in the groundwater. It is recommended that monitoring for metals be discontinued for all wells that exhibit no exceedance of MCLs for metals for one year. Wells that have met this criteria for 2000 are: 90JB0001B, 90JB0001C, 90JB0001D, 90JB0004A, 90JB0004C, 90JB0006B, 90MW0003, 90MW0005, 90MW0020, 90MW0025, 90MW0027, 90MW0028, 90MW0040, 90MW0042, 90MW0050, 90MW0053, 90MW0055, 90MW0056, 90MW0066A, 90MW0070, 90MW0076, 90MW0079C, 90MW0080, 90MW0081, 90MW0083, 90MW0085A, and 90MW0085B. In addition, metals analysis for well 90MW0100A,B, which according to project note AFC-J23-35U40503-P1-0009 was to substitute for 90MW0050, should also be discontinued.

- Recommendations for additional chemical monitoring were presented to the Joint Process Action Team (JPAT) on 19 December 2000. The following wells were added to quarterly sampling for EDB analysis (project note AFC-J23-35U40503-P1-0009 issued 24 January 2001): 90MW0058; 90MW0100A,B; 90MW0103A; 90MP0059B; 90MW0049; 90RIW0009 (two levels); 90MP0060A; 90MP0060B; 90MP0060C; 90MP0060E; 90MP0060F; 90PZ1-B1; 90PZ1-B2; 90PZ1-C1; 90MW0101A; proposed well A (WL-169, located on the northeast side of Snake Pond near ECMWSNP02S,D; two screens); proposed well B (WL-171, located on the isthmus on the northwest side of Snake Pond; three screens); proposed well C (90MW0105A,B located on the southeast side of Snake Pond; two screens); and proposed well D (90MW0104A,B,C located on the southeast side of Snake Pond; three screens) (Figure 7-2). This recommendation for sampling is further modified to become semiannual rather than quarterly (pending at least two sampling rounds for EDB analysis). This recommendation is made based on the results of the groundwater temporal and spatial optimization analyses presented in Appendix G. In addition, all of these wells have been recommended for at least one-time sampling for VOC analyses. Results of those VOC analyses will determine whether the wells will be sampled for VOC analysis on a regular basis.

- Additional hydraulic monitoring was recommend due to comments from the JPAT on 19 December 2000. The following wells were recommended to be added as quarterly monitoring for water levels: 90PZ0204; ECMWSNP01; ECMWSNP02S,D; 90RIW0009; 90PZ1-B1; 90PZ1-B2; 90PZ1-C1; 90RIW0008; 90MP0060A,B,C,E,F;

ECPZSNP01; ECMWSNP03S,D; 90RIW0010; ECPZSNP02; 90RIW0013; 90MW0058; proposed well B.

- There has been some discussion regarding the area of contamination west of the current source area of the FS-12 plume. Monitoring conducted in 2001 in conjunction with AMEC and the U.S. Army has yielded some low-level detections of EDB west of the source area along Greenway Road. Four groundwater screening borings were drilled in coordination with work conducted by the Army National Guard (WL-147, WL-144, WL-148, and WL-157). Well WL-144, located on Greenway Road approximately 2000 feet west of the source area, had two low-level detections of EDB at 70 feet (0.019 µg/L on 04 January 2001) and 80 feet (0.012 µg/L on 04 January 2001) below the water table. These detections were likely not related to the source area because they occur much deeper than the contamination in the source area. Well WL-148, located on Greenway Road approximately 1,000 feet west of the source area, had no detectable concentrations of EDB in any of the 10-foot interval screening samples (70 to 170 ft bgs). Well WL-147, located on Greenway Road approximately 500 feet west of the source area, had no detectable concentrations of EDB in the screening samples (90 to 190 ft bgs). Well WL-157, located south of the J3 wetland adjacent to former SPEIM monitoring well 90MW0004, had no detectable concentrations of EDB in any of the screening samples (20 to 110 ft bgs). In light of this evidence, there does not seem to be an issue with the source area extending farther west than previously depicted.
- Monitoring of additional wells for chemical and hydraulic monitoring as a part of the 90EW0031 system start-up is recommended. Chemical monitoring will include samples for EDB and VOC analyses collected once before system start-up and once 15 days after system start-up. Wells selected for groundwater sampling include 90MW0100B, 90MP0060A, 90MP0060B, ECMWSNP02D, and 90RIW0009 (deep sample). Hydraulic monitoring will consist of measuring water levels at 90MP0060B, 90MP0060D, 90MP0060F, 90RIW0009, and 90EW0031. The frequency for hydraulic monitoring will be once two weeks prior to system start-up, once one week prior to system start-up, and once 15 days after system start-up.

## 7.3 PROPOSED HYDRAULIC MONITORING NETWORK REVISIONS

After monitoring the FS-12 remedial system for several years, AFCEE has developed an approach to refine and optimize the collection of hydraulic data relative to the future assessments of FS-12 system performance. The basis for interpretation of hydraulic data in previous quarterly reports and this annual SPEIM report includes contouring observed water level data to evaluate trends, gradients, and the water table surface. This approach is limited in that the three-dimensionality of the system and hydraulic anisotropy are not accounted for in the analysis. This report begins a new approach that relies on the simulation of gradients and groundwater elevations with numerical groundwater models

as the basis for documenting system performance and the influence of drawdown in ecological impacts.

The new SPEIM hydraulic monitoring network is designed to provide adequate data for this analysis and discontinue superfluous water level measurements associated with large quarterly water level measuring events. The network is designed to minimize the number of wells monitored quarterly, yet provide adequate data to monitor and evaluate regional trends in groundwater levels and gradients near the FS-12 remedial system. Peripheral monitoring wells will be measured quarterly to identify any changes in regional gradients or azimuth, and the degree of water level elevation fluctuation.

This refinement involves moving from a time-based monitoring frequency to a combined time-based and event-based monitoring frequency. A similar optimization approach is being implemented concurrently for the Chemical Spill-10, Storm Drain-5 and Landfill-1 SPEIM programs.

Once a remedial system has reached steady state operation, quarterly monitoring of hydraulic stress will show no change unless influenced by significant natural water level fluctuations (external stresses) or changes in system operating conditions. Changes in regional water table conditions that might constitute a substantial deviation from the designed conditions should be monitored. Regional hydraulic gradients and variations in general flow conditions can be determined by focusing the monitoring at a few locations that are peripheral to or within the boundaries of the plume outline and SPEIM network. Calculations of gradient changes in these wells will be used to determine if (1) a more extensive MMR site-wide monitoring event is required to map the regional water table in the event that flow conditions in the western Cape Cod area are significantly different than design assumptions, or (2) a focused system monitoring event (utilizing the existing SPEIM hydraulic network) is warranted. A focused event may be warranted if local gradient change is sufficiently large to potentially affect system capture performance or if system performance has changed.

For the next annual monitoring period, it is recommended that the regional hydraulic monitoring network be revised as follows:

- A regional western Cape Cod area-wide monitoring well network will be measured synoptically when extreme recharge conditions influence the trajectory of contaminant plumes or when the peripheral network indicates there is a regional trend or change in gradients that may affect the performance of the remedial systems. The extent of change in gradient magnitude and direction necessary to affect remedial system performance will be developed as quarterly hydraulic data from the peripheral well network (see below) are collected and baseline gradient variations are established over the next year. The regional monitoring well network will provide target values for regional model calibration and has a data density sufficient to produce a regional groundwater elevation map of western Cape Cod. The regional monitoring well network was developed by plotting all well locations in the AFCEE/MMR Data Warehouse database, supplemented with well data from recent Impact Area investigations conducted by AMEC for the Army National Guard and water supply studies conducted by Jacobs Engineering for the U.S. Army Corp of Engineers (USACE) (AFCEE/JPO 2000). The data sets used to construct the 1993, 1995, 1998, and 2000 water table maps were reviewed for reference. Existing monitoring wells were separated into five depth classes: greater than 25 ft msl, 25 to 0 ft msl, 0 to -50 ft msl, -50 to -100 ft msl, and less than -100 ft msl. These depth classes were used to guide the selection of wells for the regional hydraulic monitoring well network in order to obtain adequate horizontal and vertical coverage of the aquifer. The entire regional hydraulic monitoring network is illustrated in Figure 6-32 of the *Draft Landfill-1 2000 Annual System Performance and Ecological Impact Monitoring Report* (AFCEE 2001b). Table 7-2 of this document lists all the wells to be monitored along with their location and screen information. Surface water in lakes, ponds, streams, and wetland/bogs will also be monitored for water levels and discharge, as appropriate. These monitoring locations are included at the end of Table 7-2.

- A peripheral network of monitoring wells will be measured quarterly to determine any changes in regional hydraulic gradient magnitude and azimuth. The FS-12 peripheral network is presented in Figure 7-2, and the wells are listed in Table 7-3.

  The peripheral well network was developed by plotting all wells in the AFCEE-MMR Data Warehouse and selecting neighboring wells screened at common elevations to allow for determination of horizontal hydraulic gradients. Monitoring wells were selected for inclusion in the peripheral well network based on the elevation of their screen intervals in order to ensure good horizontal and vertical coverage of the aquifer surrounding the FS-12 remedial system.

  Figure 7-3 shows proposed triangular relationships and associated hydraulic monitoring wells used to determine hydraulic gradients. The locations and size of these elements were constrained by the location of available wells screened at similar elevations. However, the number, size, and location of these elements were chosen as much as possible to:

  - Minimize distance between wells used in determining hydraulic gradients,
  - Bound the dimensions of the plume.
  - Monitor at variable depths within the aquifer,
  - Monitor upgradient and downgradient locations near extraction and reinjection systems, and
  - Monitor near sensitive surface water features.

  Data collected from this peripheral network will be analyzed and compared with historical and baseline conditions and model-simulated gradients and groundwater elevations to verify system performance and to monitor and alert of possible significant impacts on remedial system performance due to regional scale changes in groundwater hydraulic conditions.  Peripheral monitoring wells will be measured quarterly to identify any changes in regional gradients or azimuth and determine the degree of water level elevation fluctuation.

- Monitoring of locations within the existing FS-12 SPEIM hydraulic monitoring well network will be conducted on an as-needed basis when hydraulic assessment of the peripheral network indicates that hydraulic conditions at FS-12 have changed significantly from design conditions.  This monitoring will occur when new boundary conditions and target points are required for zoom model recalibration.

# 8.0 REFERENCES

AFCEE (Air Force Center for Environmental Excellence). 1997 (November). *Final Design Report for FS-12*. AFC-J23-35K78404-M23-0012. Prepared by Jacobs Engineering Group Inc. for AFCEE/MMR, Installation Restoration Program, Otis Air National Guard Base, MA.

———. 1998a (April). *Final Performance Monitoring Evaluation Plan for Fuel Spill-12*. AFC-J23-35K78404-M17-0007. Prepared by Jacobs Engineering Group Inc. for AFCEE/MMR Installation Restoration Program, Otis Air National Guard Base, MA.

———. 1998b (April). *Final Work Plan for the Ecological Assessment Associated with Groundwater Plumes and Remedial Activities*. AFC-J23-35K78412-M22-0006. Prepared by Jacobs Engineering Group Inc. for AFCEE/MMR Installation Restoration Program, Otis Air National Guard Base, MA.

———. 1998c (June). *Inorganics Investigation: Technical Memorandum*, Volume I. AFC-J23-35K78411-M17-0010. Prepared by Jacobs Engineering Group Inc. for AFCEE/MMR, Installation Restoration Program, Otis National Guard Base, MA.

———. 1998d (August). *Final Fuel Spill-12 (FS-12) Groundwater Plume Phase II Pre-Operational Ecological Sampling Plan*. AFC-J23-35K78412-M7-0036. Prepared by Jacobs Engineering Group Inc. for AFCEE/MMR Installation Restoration Program, Otis Air National Guard Base, MA.

———. 1998e (October). *Final SD-5 North and FS-12 Groundwater Treatment Systems Operations and Maintenance Plan*. AFC-J23-35K78404-M24-0005. Prepared by Jacobs Engineering Group Inc. for AFCEE/MMR, Installation Restoration Program, Otis Air National Guard Base, MA.

———. 1998f (October). *Second Quarter 1998 Fuel Spill-12 (FS-12) Performance Monitoring Evaluation (PME) Data Report*. AFC-J23-35Q95002-M17-0004. Prepared by Jacobs Engineering Group Inc. for AFCEE/MMR Installation Restoration Program, Otis Air National Guard Base, MA.

———. 1998g (November). *Final Ecological Studies 1997 Annual Report for FS-12, SD-5 and CS-10 Groundwater Plumes*. AFC-J23-35K78412-M17-0032. Prepared by Jacobs Engineering Inc. for AFCEE/MMR Installation Restoration Program, Otis Air National Guard Base, MA.

———. 1998h (December). *Third Quarter 1998 Fuel Spill-12 (FS-12) Performance Monitoring Evaluation (PME) Data Report*. AFC-J23-35Q85002-M17-0005. Prepared by Jacobs Engineering Group Inc. for AFCEE/MMR Installation Restoration Program, Otis Air National Guard Base, MA.

———. 1999a (May). *Fuel Spill-12 4th Quarter 1998 Data Report and Annual Performance Monitoring Evaluation*. AFC-J23-35Q85002-M17-0010. Prepared by Jacobs Engineering Group Inc. for AFCEE/MMR Installation Restoration Program, Otis Air National Guard Base, MA.

———. 1999b (June). *Final Fuel Spill-12 (FS-12) Baseline Performance Monitoring Evaluation (PME) Data Report*. AFC-J23-35Q85002-M17-0008. Prepared by Jacobs Engineering Group Inc. for AFCEE/MMR Installation Restoration Program, Otis Air National Guard Base, MA.

———. 1999c (June). *Final Fuel Spill-12 (FS-12) First Quarter Performance Monitoring Evaluation (PME) Data Report*. AFC-J23-35Q85002-M17-0009. Prepared by Jacobs Engineering Group Inc. for AFCEE/MMR Installation Restoration Program, Otis Air National Guard Base, MA.

———. 1999d (August). *Final May 1998 Ecological Assessment Report on the Fuel Spill-12 and Storm Drain-5 North Treatment Systems*. AFC-J23-35Q85005-M22-0008. Prepared by Jacobs Engineering Group Inc. for AFCEE/MMR Installation Restoration Program, Otis Air National Guard Base, MA.

———. 1999e (August). *Fuel Spill-12 First Quarter 1999 Performance Monitoring Evaluation Data Transmittal*. AFC-J23-35S18912-M17-0001. Prepared by Jacobs Engineering Group Inc. for AFCEE/MMR Installation Restoration Program, Otis Air National Guard Base, MA.

———. 1999f (September). *Final August 1998 Ecological Assessment Report on the Fuel Spill-12 and Storm Drain-5 North Treatment Systems*. AFC-J23-35Q85005-M22-0010. Prepared by Jacobs Engineering Group Inc. for AFCEE/MMR Installation Restoration Program, Otis Air National Guard Base, MA.

———. 1999g (November). *1999 Second Quarter System Performance and Semiannual Ecological Impact Monitoring (SPEIM) Data Transmittal for the FS-12 Treatment System*. AFC-J23-35S19212-M17-0002 & AFC-J23-35S18901-M22-0006. Prepared by Jacobs Engineering Group Inc. for AFCEE/MMR Installation Restoration Program, Otis Air National Guard Base, MA.

———. 1999h (December). *Final Fuel Spill-12 Treatment System 1998 Annual Ecological Assessment Report*. AFC-J23-35S18901-M21-0010. Prepared by Jacobs Engineering Group Inc. for AFCEE/MMR Installation Restoration Program, Otis Air National Guard Base, MA.

———. 2000a (January). *Fuel Spill-12 Third Quarter 1999 Performance Monitoring Evaluation Data Transmittal*. AFC-J23-35S19212-M17-0003. Prepared by Jacobs Engineering Group Inc. for AFCEE/MMR Installation Restoration Program, Otis Air National Guard Base, MA.

———. 2000b (May). *Final Fuel Spill-12 Phase II Technical Memorandum*. AFC-J23-35S18002-M17-0004. Prepared by Jacobs Engineering Group Inc. for

AFCEE/MMR Installation Restoration Program, Otis Air National Guard Base, MA.

———. 2000c (August). *Fuel Spill-12 Quarterly System Performance and Ecological Impact Monitoring Report, January-March 2000*. AFC-J23-35U40503-M30-0001. Prepared by Jacobs Engineering Group Inc. for AFCEE/MMR Installation Restoration Program, Otis Air National Guard Base, MA.

———. 2000d (September). *Quality Program Plan*. AFC-J23-35Q85101-M3-0002. Prepared by Jacobs Engineering Group Inc. for AFCEE/MMR, Installation Restoration Program, Otis Air National Guard Base, MA.

———. 2000e (October). *Fuel Spill-12 Quarterly System Performance and Ecological Impact Monitoring Report, April – June 2000*. AFC-J23-35U40503-M30-0002. Prepared by Jacobs Engineering Group Inc. for AFCEE/MMR Installation Restoration Program, Otis Air National Guard Base, MA.

———. 2001a (February). *Draft Combined Storm Drain-5 and Chemical Spill-10 2000 Annual System Performance and Ecological Impact Monitoring Report*. AFC-J23-35U40506-M31-0001. Prepared by Jacobs Engineering Group Inc. for AFCEE/MMR Installation Restoration Program, Otis Air National Guard Base, MA.

———. 2001b (February). *Draft Landfill-1 2000 Annual System Performance and Ecological Impact Monitoring Report*. AFC-J23-35U40509-M31-0001. Prepared by Jacobs Engineering Group Inc. for AFCEE/MMR, Installation Restoration Program, Otis Air National Guard Base, MA.

———. 2001c (February). *Final Fuel Spill-12 Treatment System 1999 Annual System Performance and Ecological Impact Monitoring Report*. AFC-J23-35U40502-M22-0003. Prepared by Jacobs Engineering Group Inc. for AFCEE/MMR Installation Restoration Program, Otis Air National Guard Base, MA.

———. 2001d (February). *Fuel Spill-12 Quarterly System Performance and Ecological Impact Monitoring Report, July-September 2000*. AFC-J23-35U40503-M30-0003. Prepared by Jacobs Engineering Group Inc. for AFCEE/MMR Installation Restoration Program, Otis Air National Guard Base, MA.

AFCEE/JPO (Air Force Center for Environmental Excellence/Joint Program Office). 2000 (July). *Groundwater Modeling Report for Water Supply Well Siting*. AFC-J23-35S19605-M17-0001. Prepared by Jacobs Engineering Group Inc. for AFCEE/MMR Installation Restoration Program for the Joint Program Office, Otis Air National Guard Base, MA.

Bohn, H., B. McNeal and G. O'Connor. 1979. *Soil Chemistry*. New York: John Wiley & Sons, Inc.

EPA (U.S. Environmental Protection Agency). 1996. Ecotox Thresholds. *ECO Update*. Publication 9345.0-12FSI. EPA 540/F-95/038. Intermittent Bulletin, 3(2).

Manly, B.F.J. 1991. *Multivariate Statistical Methods*. London: Chapman & Hall.

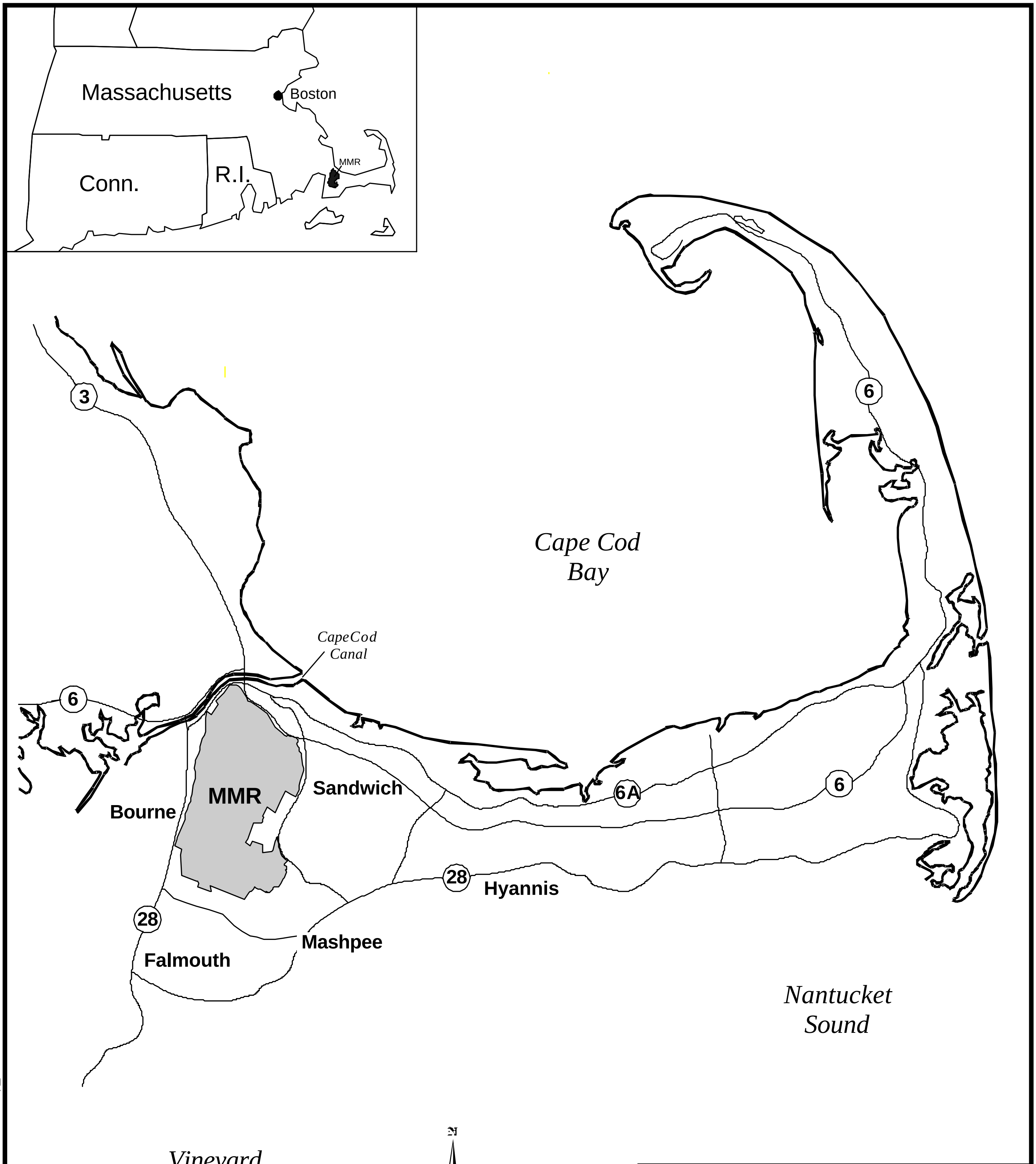
NRC (National Research Council). 2000. *Natural Attenuation for Groundwater Remediation*. Washington D. C.: National American Press.

Rohlf, F.J. and R.R. Sokal. 1994. *Statistical Tables.* 3rd Edition. W.H. Freeman and Co.

Roy, W.R. and R.A. Griffin. 1985. Mobility of organic solvents in water-saturated soil material. *Environmental Geology and Water Science* 7: 241-247.

Seeber, G.A.F. 1984. *Multivariate Observations*. New York: John Wiley & Sons, Inc.

# FIGURES




JACOBSENGINEERING

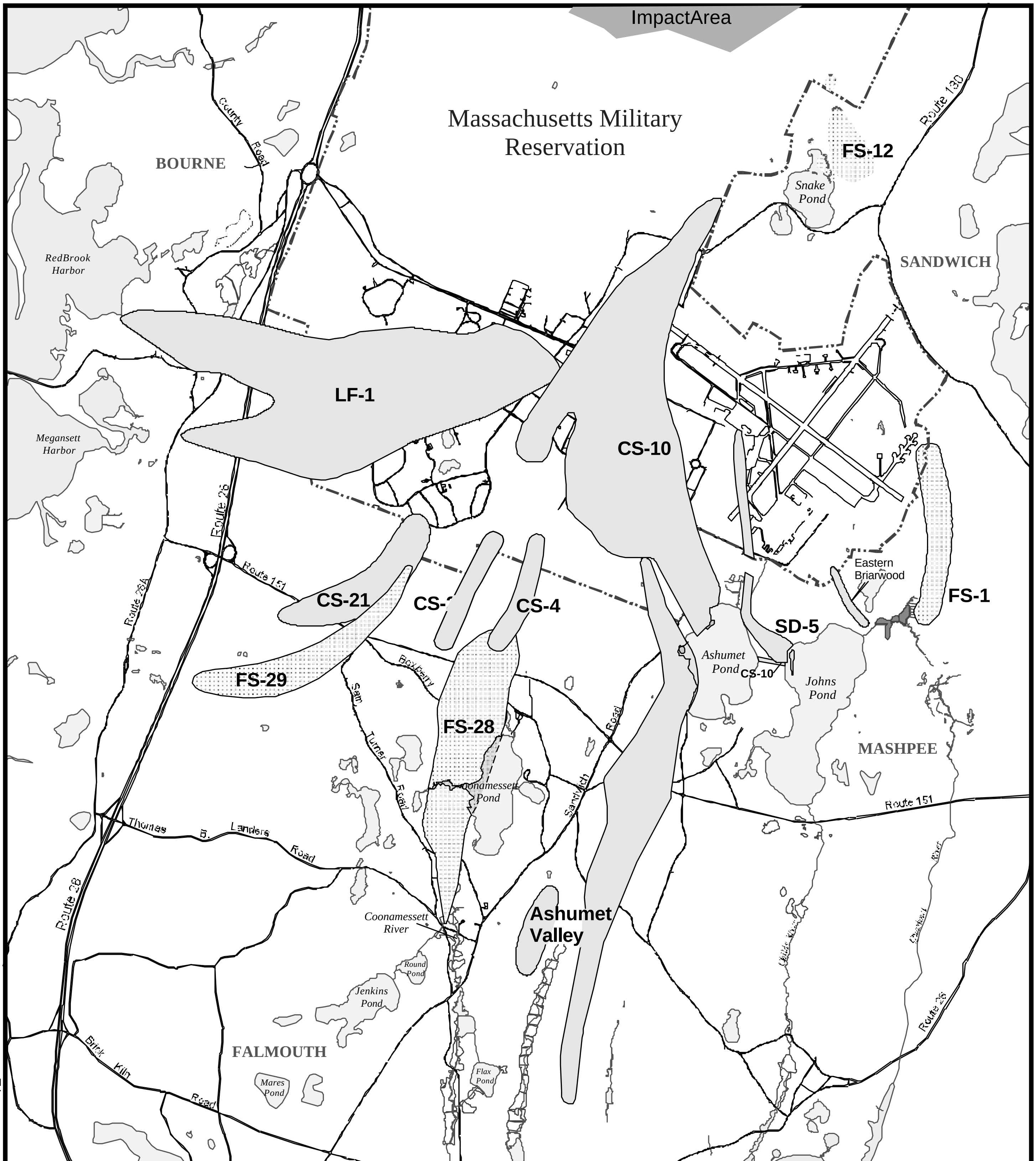
Massachusetts Military Reservation
Cape Cod, MA

Massachusetts Military Reservation
CapeCod,Massachusetts

5/14/01 SC FS12-An00-Sp_03.cdr

Figure 1-1

L:\04Reports\FS-12\FS12-An00-Sp\Corel\FS12-An00-Sp_03.cdr




## Legend

Plume Contour (TCE, PCE MCL = 5 μg/L)

Plume Contour (EDB MCL = 0.02 μg/L)

N

0 3000
Scale in Feet

JE JACOBS ENGINEERING

**MMR Plume Map**
**January 2001**

Massachusetts Military Reservation
Cape Cod, Massachusetts

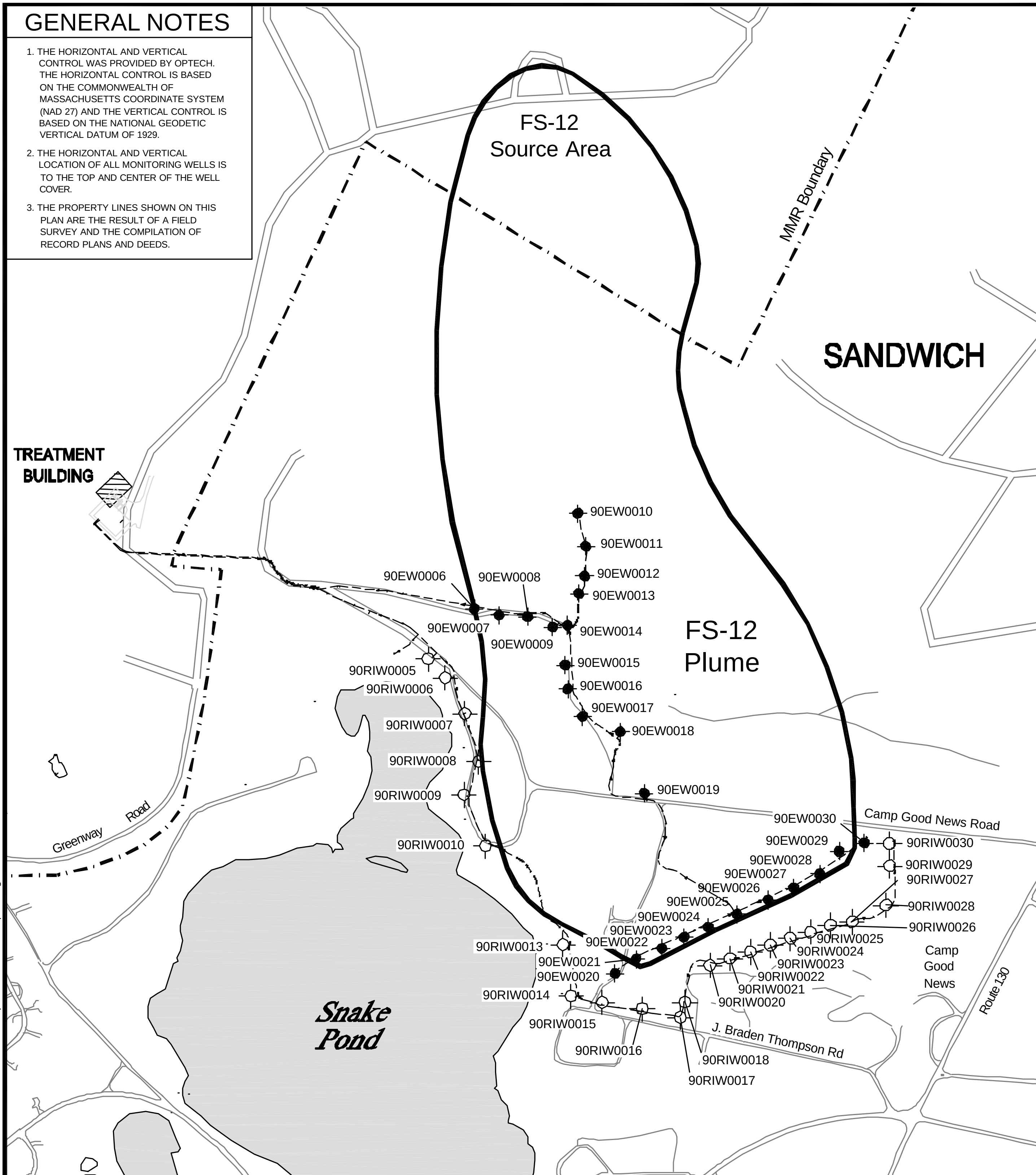
5/14/01 SC FS12-An00-Sp_04.cdr

Figure 1-2

L:\04Reports\FS-12\FS12-An00-SpVCorel\FS12-An00-Sp_04.cdr

## GENERAL NOTES

1. THE HORIZONTAL AND VERTICAL CONTROL WAS PROVIDED BY OPTECH. THE HORIZONTAL CONTROL IS BASED ON THE COMMONWEALTH OF MASSACHUSETTS COORDINATE SYSTEM (NAD 27) AND THE VERTICAL CONTROL IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929.
2. THE HORIZONTAL AND VERTICAL LOCATION OF ALL MONITORING WELLS IS TO THE TOP AND CENTER OF THE WELL COVER.
3. THE PROPERTY LINES SHOWN ON THIS PLAN ARE THE RESULT OF A FIELD SURVEY AND THE COMPILATION OF RECORD PLANS AND DEEDS.




## Legend

- Extraction Well
- Reinjection Well
- Plume Contour: (EDB MCL = 0.02 μg/L)
- Extraction, Treatment, Reinjection (ETR) System Pipeline
- MMR Boundary

Note:
Plume delineation is based on the preconstruction investigation (groundwater screening) by Jacobs in 1996 - 97 (AFCEE 1997).

N

0 700

Scale in Feet

JE JACOBS ENGINEERING

FS-12 ETR System

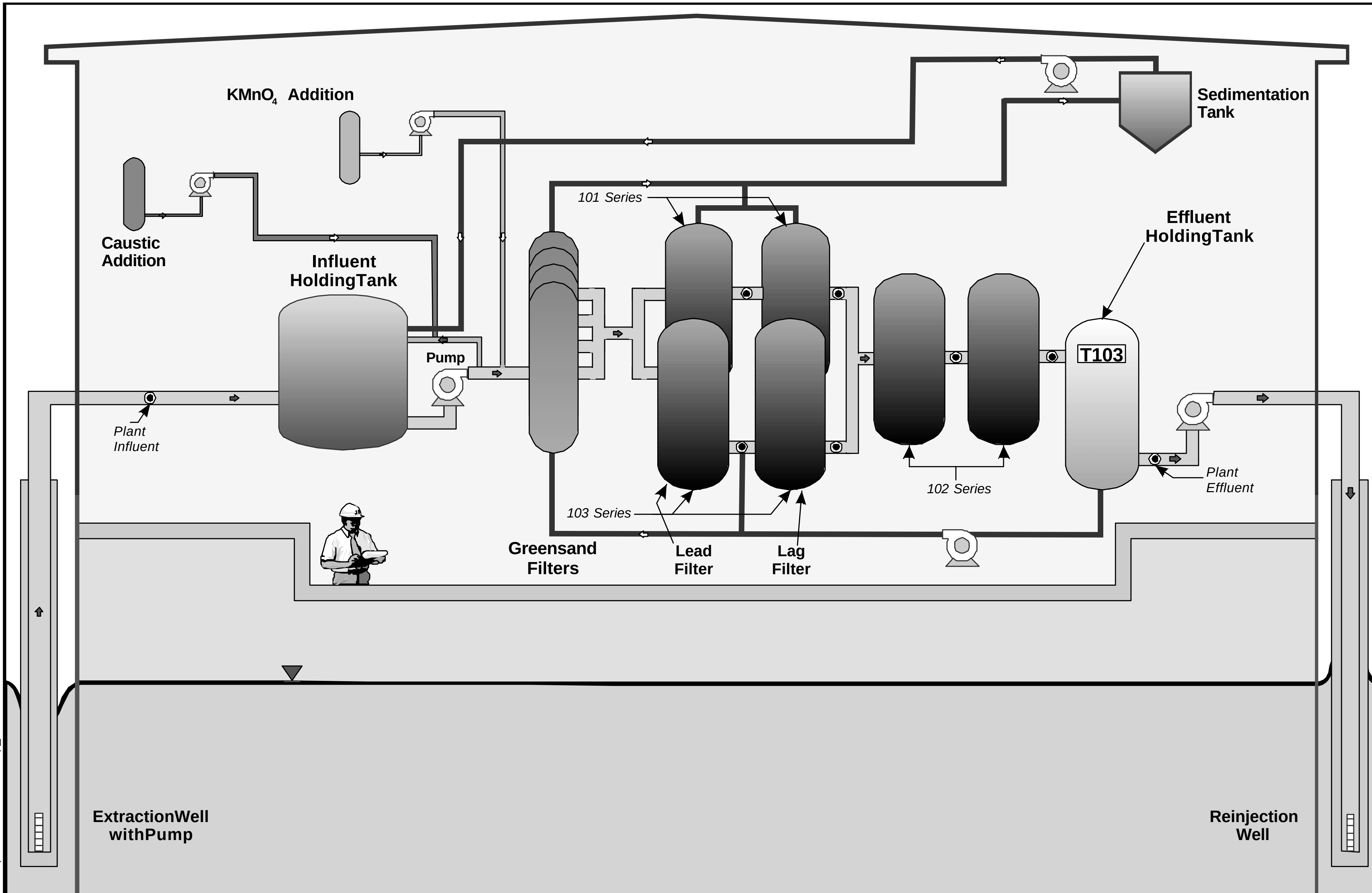
Massachusetts Military Reservation
Cape Cod, Massachusetts

05/14/01 WR FS12-An00-Sp-06.dwg

Figure 1-3

L:\4-REPORTS \FS-12\FS12-An00-Sp\CAD\FS12-An00-Sp-06.dwg

last modified: 05/14/01 printed: 12/24/01 by Wr




## Legend

◉ Sampling Port

▼ Water Table

$KMnO_4$ Potassium Permanganate

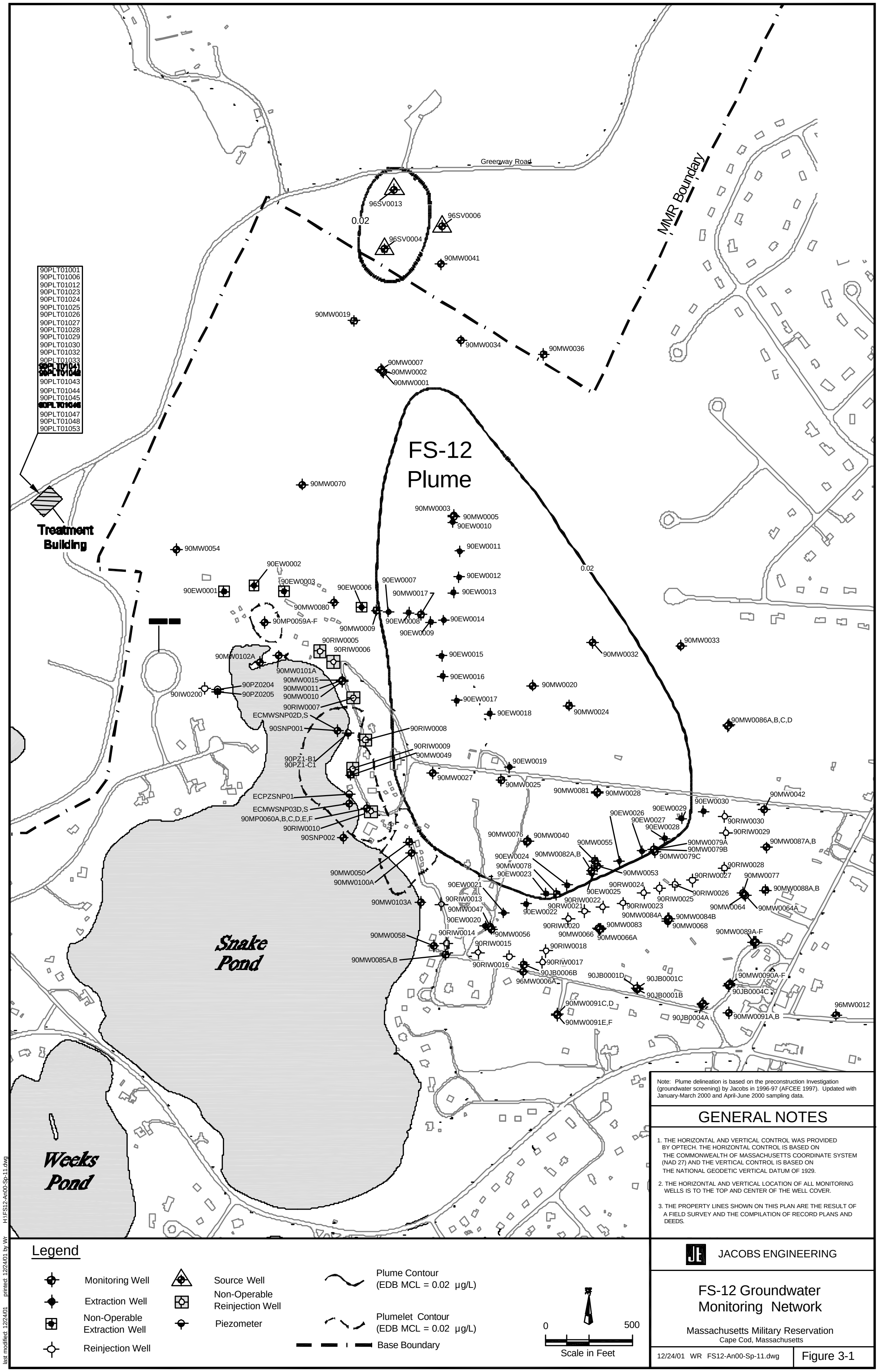
JACOBSENGINEERING

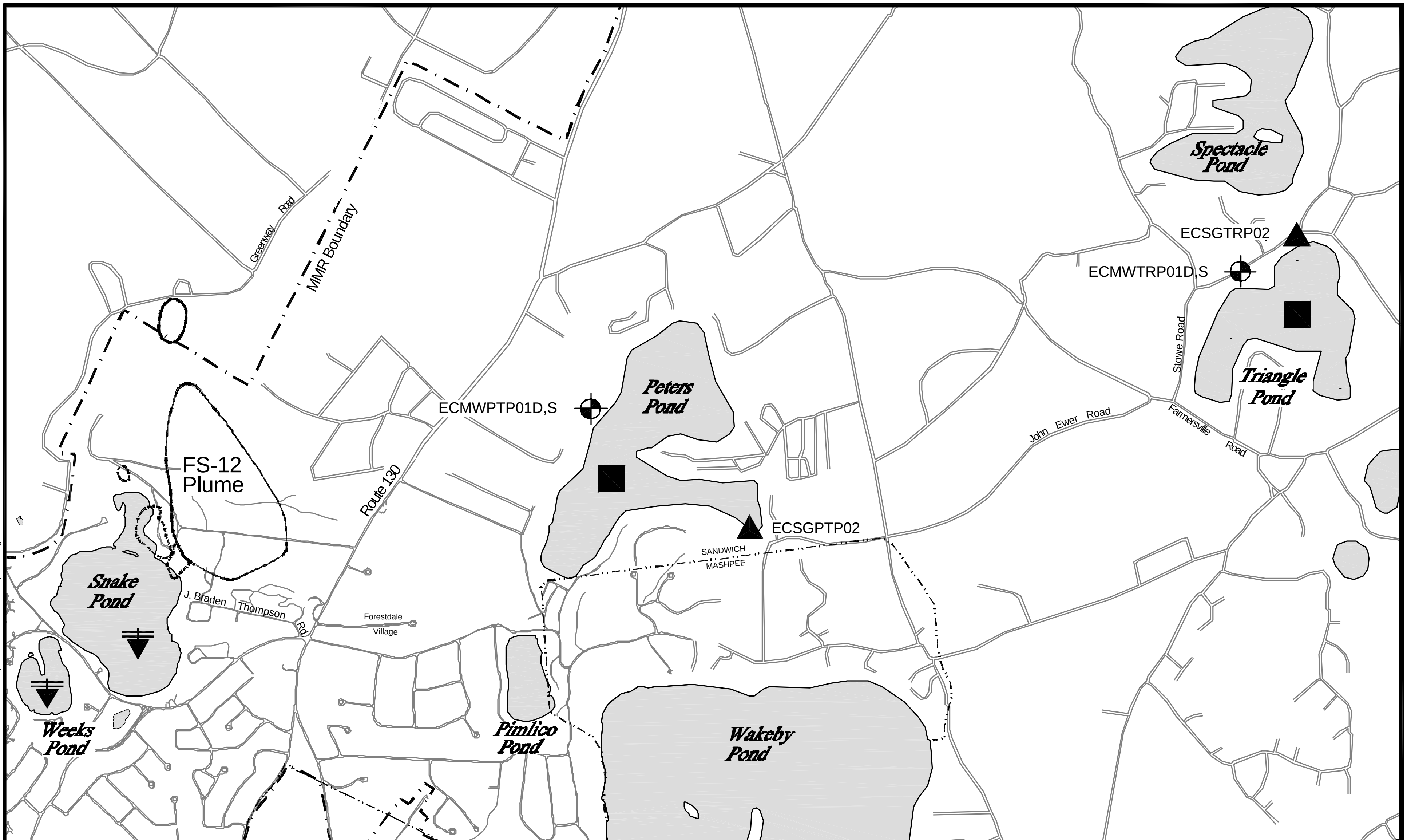
ProcessFlow Diagram
attheFS-12TreatmentPlant
withSamplingLocations

3/15/01 SC FS12-An00-Sp_07.cdr

Figure1-4

L:\04Reports\FS-12\FS12-An00-Sp\CorelM\FS12-An00-Sp_07.cdr


Greenway Road
MMR Boundary
96SV0013
0.02
96SV0006
96SV0004
90MW0041
90MW0019
90MW0034
90MW0036
90MW0007
90MW0002
90MW0001
90PLT01001
90PLT01006
90PLT01012
90PLT01023
90PLT01024
90PLT01025
90PLT01026
90PLT01027
90PLT01028
90PLT01029
90PLT01030
90PLT01032
90PLT01033
90PLT01043
90PLT01044
90PLT01045
90PLT01047
90PLT01048
90PLT01053
Treatment Building
FS-12 Plume
90MW0070
90MW0003
90MW0005
90EW0010
90EW0011
90MW0054
90EW0012
90EW0013
90EW0002
90EW0003
90EW0001
90EW0006
90EW0007
90MW0017
90MW0080
90MP0059A-F
90MW0009
90EW0008
90EW0009
90EW0014
0.02
90MW0033
90RIW0005
90RIW0006
90MW0102A
90EW0015
90MW0032
90MW0101A
90EW0016
90MW0015
90MW0011
90MW0010
90PZ0204
90PZ0205
90IW0200
90MW0020
90EW0017
90RIW0007
90EW0018
90MW0024
ECMWSNP02D,S
90SNP001
90RIW0008
90MW0086A,B,C,D
90RIW0009
90MW0049
90PZ1-B1
90PZ1-C1
90EW0019
90MW0027
90MW0025
90MW0081
90MW0028
90MW0042
ECPZSNP01
ECMWSNP03D,S
90MP0060A,B,C,D,E,F
90RIW0010
90SNP002
90EW0030
90RIW0030
90EW0026
90EW0029
90EW0027
90EW0028
90RIW0029
90MW0076
90MW0040
90MW0055
90MW0079A
90MW0079B
90MW0079C
90MW0087A,B
90EW0024
90MW0082A,B
90MW0078
90EW0023
90MW0053
90RIW0028
90MW0050
90MW0100A
90RIW0027
90MW0077
90EW0021
90RW0024
90EW0025
90RIW0026
90MW0088A,B
90RIW0013
90RIW0022
90RIW0025
90MW0103A
90MW0047
90RW0021
90RIW0023
90MW0064
90MW0064A
90EW0022
90MW0084A
90MW0084B
90EW0020
90RIW0020
90MW0083
90MW0068
90RIW0014
90MW0056
90MW0066
90MW0066A
90MW0089A-F
90MW0058
90RIW0015
90RIW0018
90MW0085A,B
90RIW0016
90RIW0017
90JB0006B
96MW0006A
90JB0001D
90JB0001C
90JB0001B
90MW0090A-F
90JB0004C
90MW0091C,D
90MW0091E,F
90JB0004A
90MW0091A,B
96MW0012
Snake Pond
Weeks Pond
Note: Plume delineation is based on the preconstruction Investigation (groundwater screening) by Jacobs in 1996-97 (AFCEE 1997). Updated with January-March 2000 and April-June 2000 sampling data.
GENERAL NOTES
1. THE HORIZONTAL AND VERTICAL CONTROL WAS PROVIDED BY OPTECH. THE HORIZONTAL CONTROL IS BASED ON THE COMMONWEALTH OF MASSACHUSETTS COORDINATE SYSTEM (NAD 27) AND THE VERTICAL CONTROL IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929.
2. THE HORIZONTAL AND VERTICAL LOCATION OF ALL MONITORING WELLS IS TO THE TOP AND CENTER OF THE WELL COVER.
3. THE PROPERTY LINES SHOWN ON THIS PLAN ARE THE RESULT OF A FIELD SURVEY AND THE COMPILATION OF RECORD PLANS AND DEEDS.
Legend
Monitoring Well
Extraction Well
Non-Operable Extraction Well
Reinjection Well
Source Well
Non-Operable Reinjection Well
Piezometer
Plume Contour (EDB MCL = 0.02 µg/L)
Plumelet Contour (EDB MCL = 0.02 µg/L)
Base Boundary
0
500
Scale in Feet
JACOBS ENGINEERING
FS-12 Groundwater Monitoring Network
Massachusetts Military Reservation
Cape Cod, Massachusetts
12/24/01 WR FS12-An00-Sp-11.dwg
Figure 3-1
last modified: 12/24/01 printed: 12/24/01 by Wr H:\FS12-An00-Sp-11.dwg




## Legend

Monitoring Well

Staff Gauge

MMR Boundary

Town Boundary

Indicates Reference Area

Indicates Potentially Impacted Site

FS-12 EDB Plume Contour (EDB MCL = 0.02 µg/L)

Note:
Plume delineation is based on the preconstruction investigation (groundwater screening) by Jacobs in 1996 - 97 (AFCEE 1997).

N

0 2100

Scale in Feet

JE JACOBS ENGINEERING

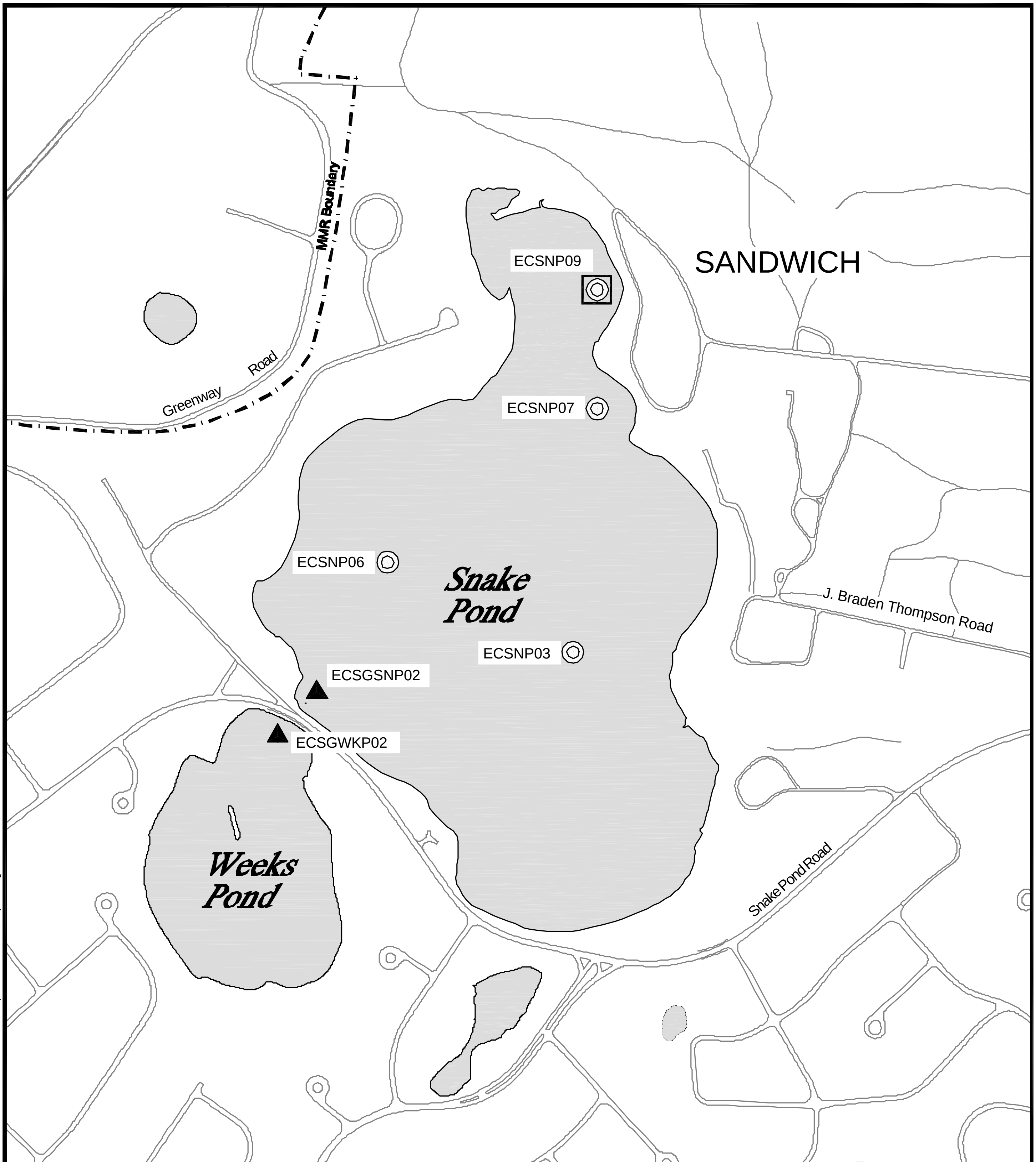
Reference Groundwater Sampling Locations, Potentially Impacted and Reference Areas Associated with FS-12 SPEIM Monitoring

Massachusetts Military Reservation
Cape Cod, Massachusetts

12/24/01 WR FS12-An00-Sp-05.dwg

Figure 3-2

last modified: 12/24/01 printed: 12/26/01 by Wr L:\4-REPORTS \FS-12 \FS12-An00-Sp \CAD \FS12-An00-Sp-05.dwg




## Legend

- Surface Water Sampling Location
- Staff Gauge
- Sediment Sampling Location

N

0 600

Scale in Feet

JACOBS ENGINEERING

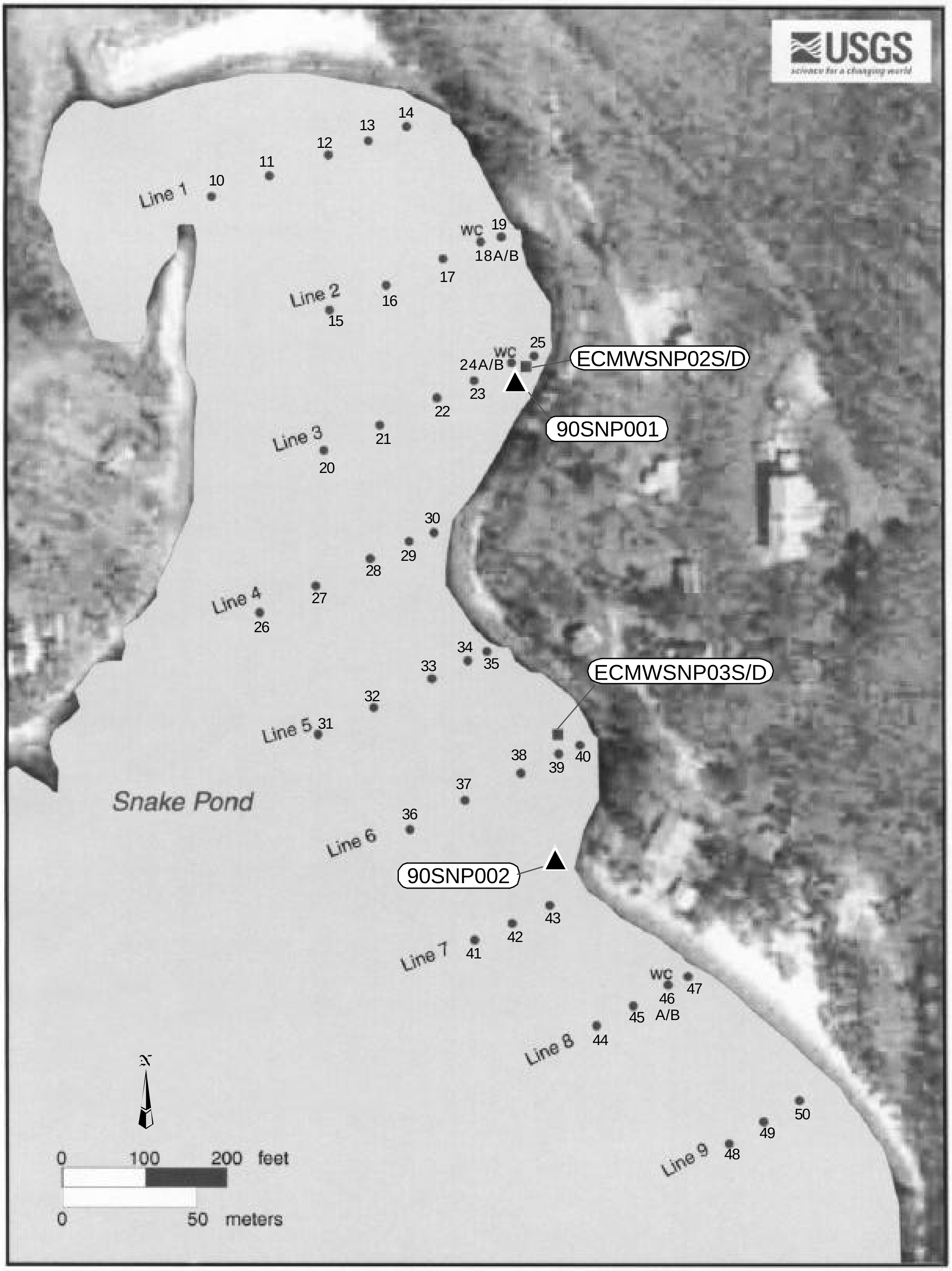
**Snake and Weeks Ponds Sampling Locations**

Massachusetts Military Reservation
Cape Cod, Massachusetts

12/24/01 WR FS12-An00-Sp-07.dwg

Figure 3-3

last modified: 12/24/01 printed: 12/26/01 by Wr L:\4-REPORTS\FS-12\FS12-An00-Sp\CAD\FS12-An00-Sp-07.dwg




Legend

- Diffusion Sampler
- Microwell
- WC Water Column Diffusion Sampler (A)
- Drive-Point

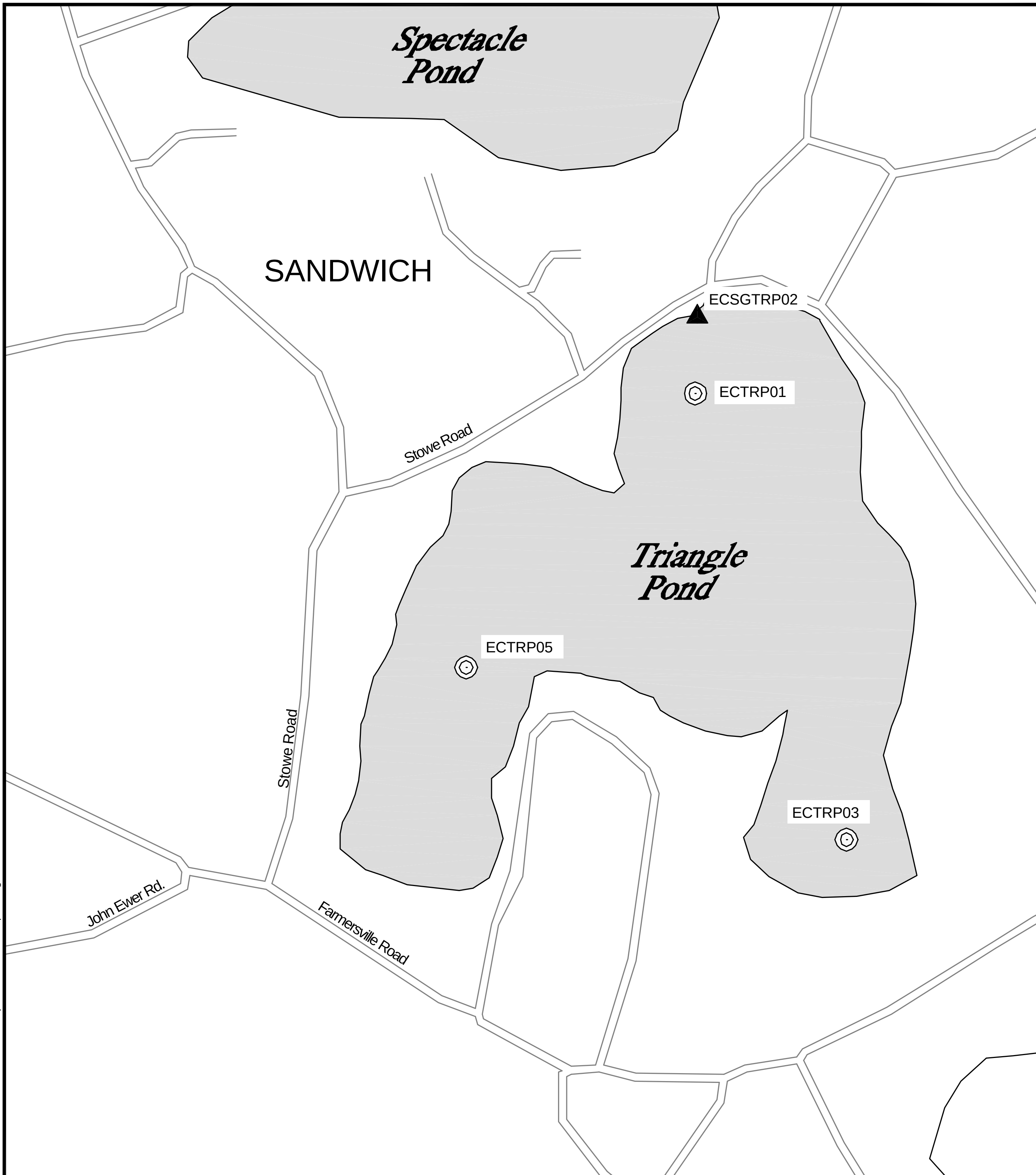
JACOBSENGINEERING

Snake Pond Drive-Point and USGS Diffusion Sampling Locations

Massachusetts Military Reservation
CapeCod,Massachusetts

| 3/15/00SC File: FS12-An00-Sp_08.cdr | Figure 3-4 |
| --- | --- |

L:\04Reports\FS-12\FS12-An00-Sp\CorelNFS12-An00-Sp_08.cdr




Legend

▲ Staff Gauge

◎ Surface Water Sampling Locations

N

0 600

Scale in Feet

JACOBS ENGINEERING

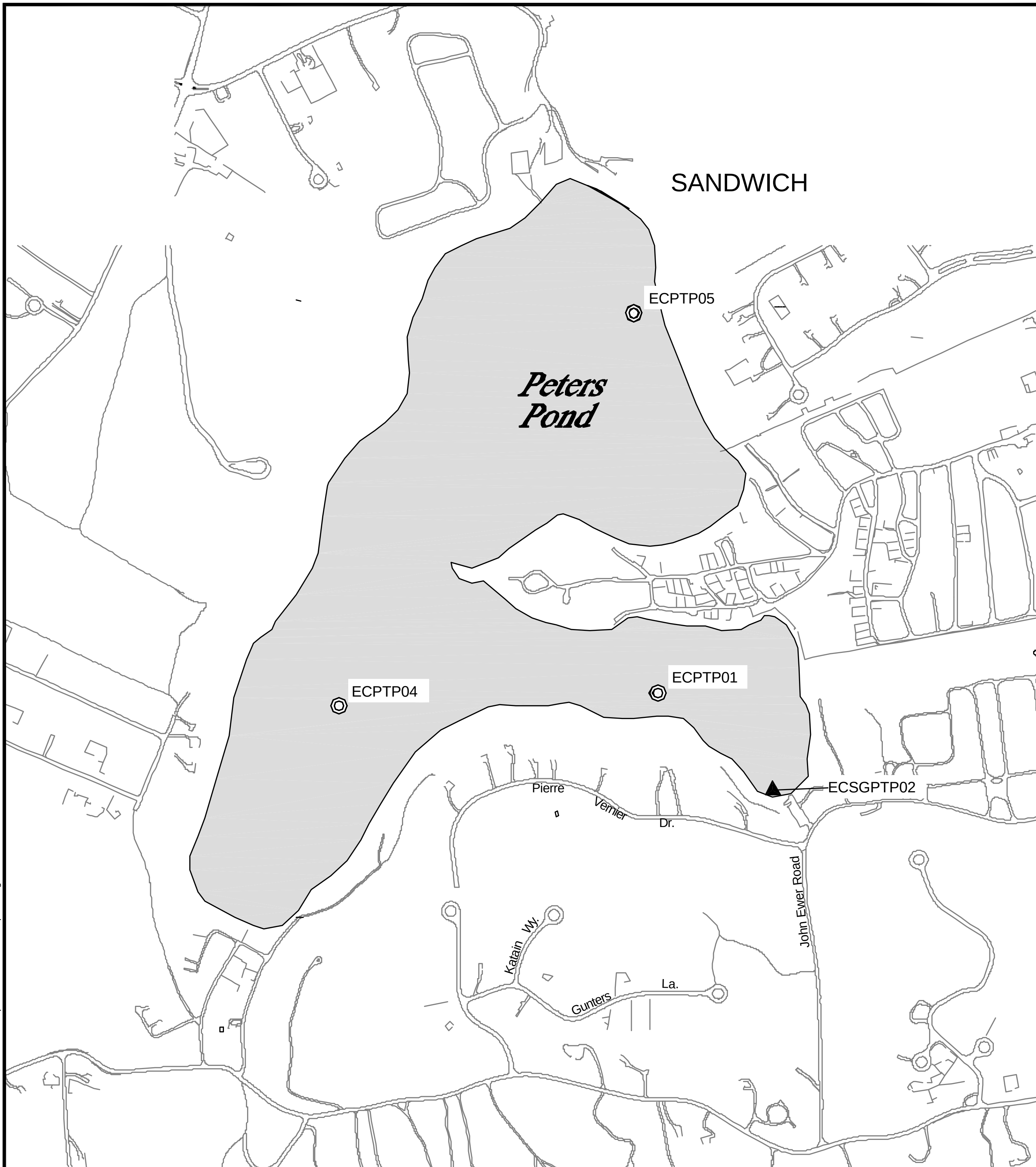
Triangle Pond
Sampling Locations

Massachusetts Military Reservation
Cape Cod, Massachusetts

05/14/01 WR FS12-An00-Sp-09.dwg

Figure 3-5

last modified: 05/14/01 printed: 12/24/01 by Wr L:\4-REPORTS \FS-12 \FS12-An00-Sp \CAD \FS12-An00-Sp-09.dwg




## Legend

Surface Water Sampling Location

Staff Gauge

0 750
Scale in Feet

JACOBS ENGINEERING

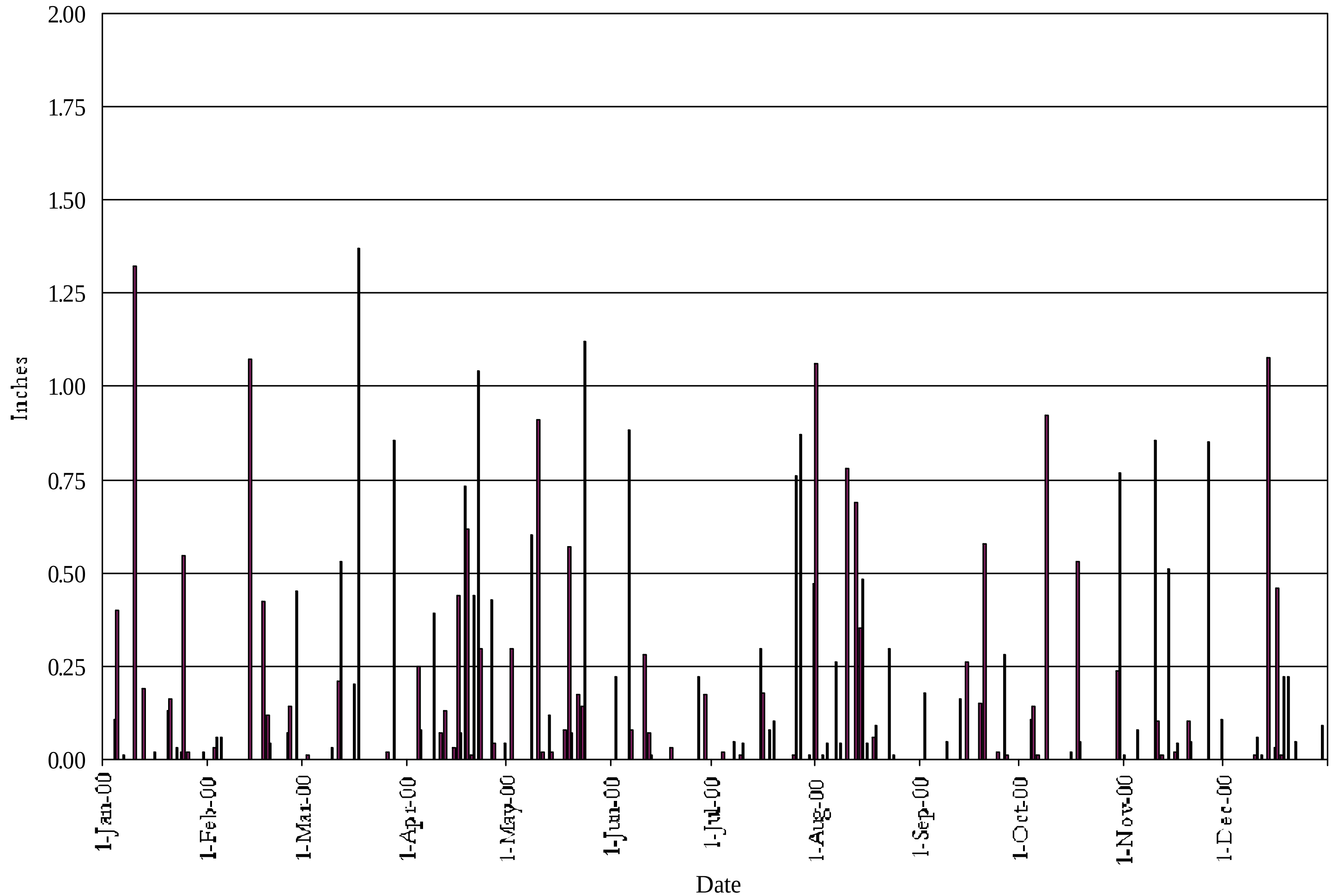
Peters Pond
Sampling Locations

Massachusetts Military Reservation
Cape Cod, Massachusetts

05/14/01 WR FS12-An00-Sp-10.dwg

Figure 3-6

L:\4-REPORTS \FS-12 \FS12-An00-Sp \CAD \FS12-An00-Sp-10.dwg last modified: 05/14/01 printed: 12/24/01 by Wr




DataSource: OtisANGB102ndOperationsWeather(1996-2000),16February2001

JACOBSENGINEERING

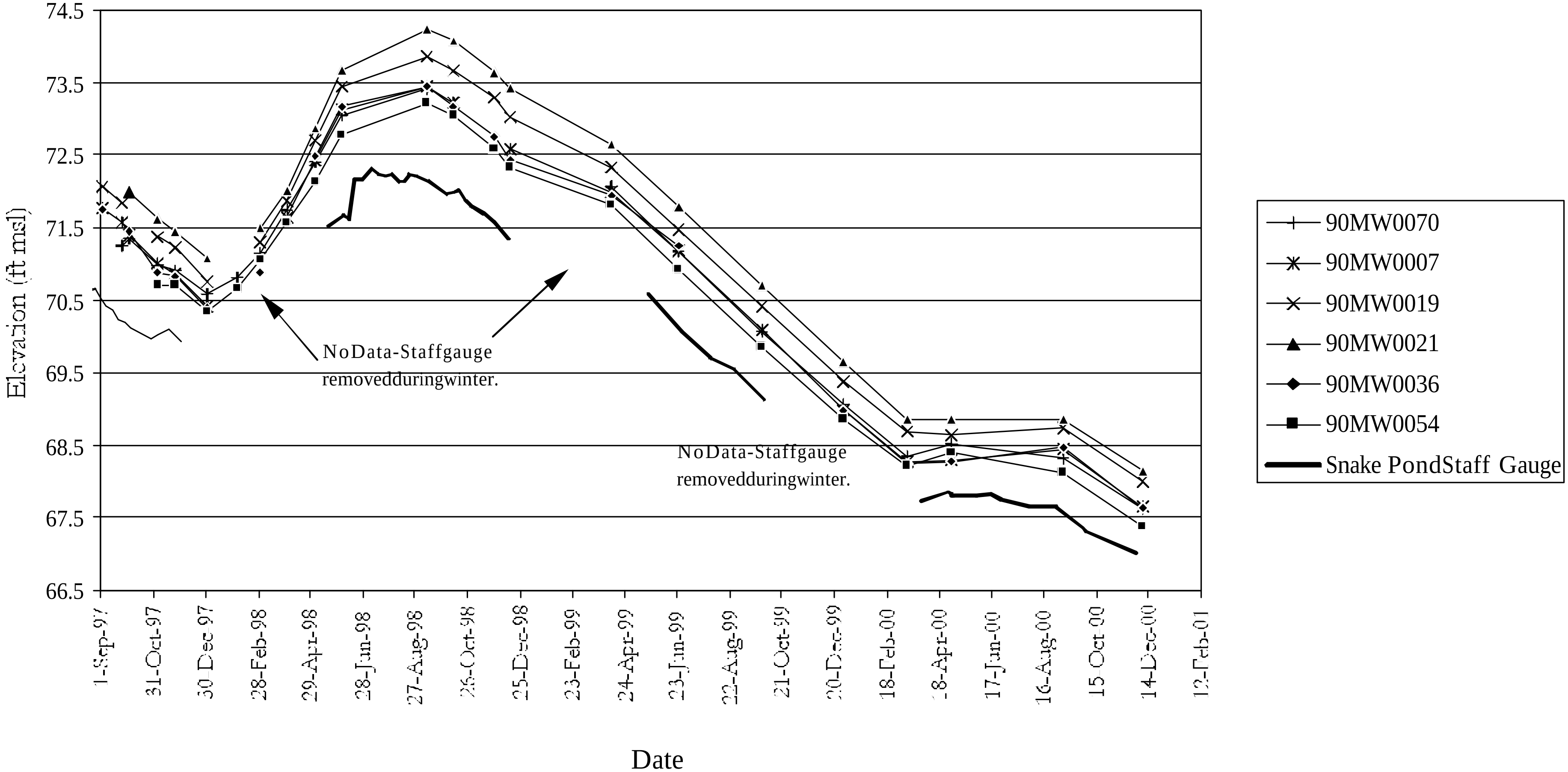
Precipitation
01 January to 31 December 2000

MassachusettsMilitaryReservation
CapeCod,Massachusetts

3/22/01scFS12-An00-Sp_19.cdr

Figure 5-1

L:\4Reports\Fs-12\FS12-An00-Sp\Corel\FS12-An00-Sp_19.CDR




DataSource:JacobsEngineeringGroupInc.,16February2001,
SiteEnvironmentalEvaluation(SEE)Database

JACOBSENGINEERING

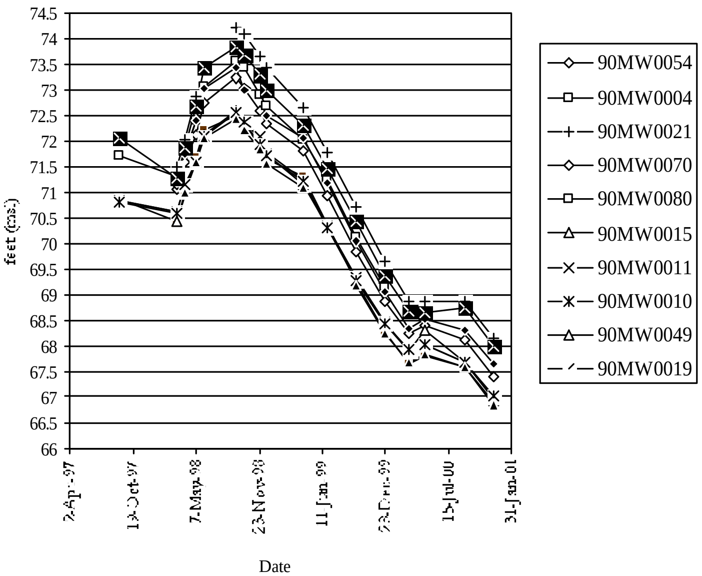
Groundwater Elevations in Background Monitoring Wells and Snake Pond

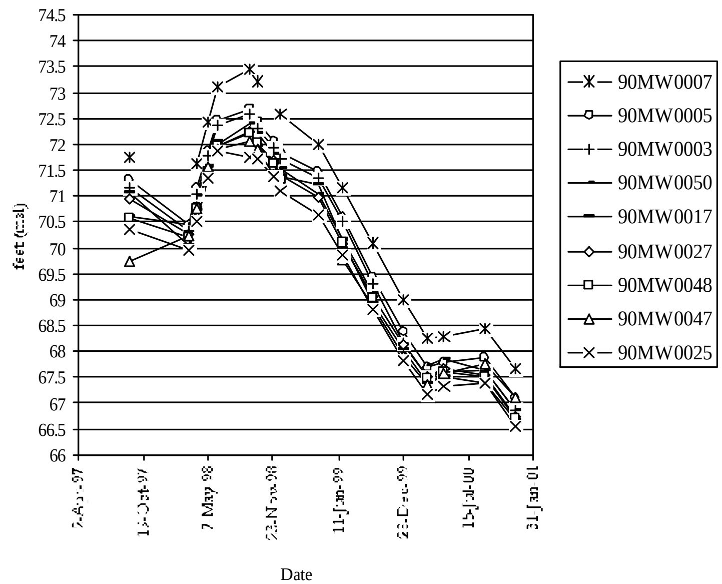
MassachusettsMilitaryReservation
CapeCod,Massachusetts

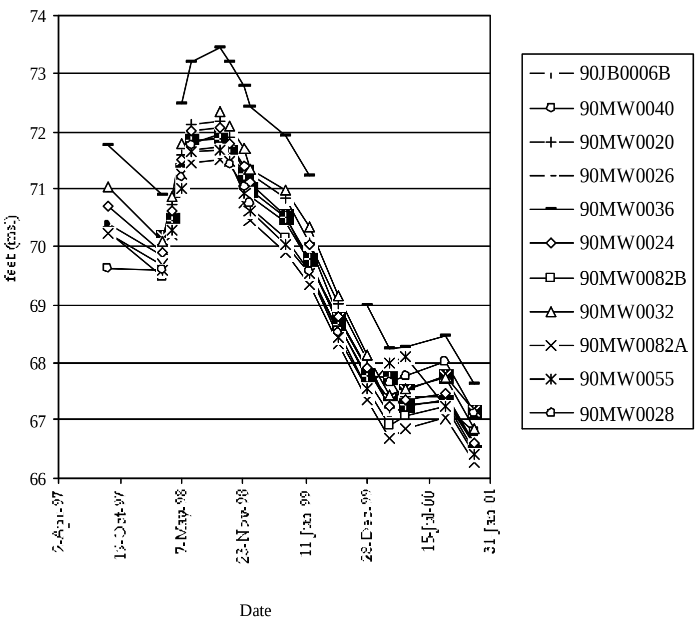
3/22/01scFS12-An00-Sp_17.cdr

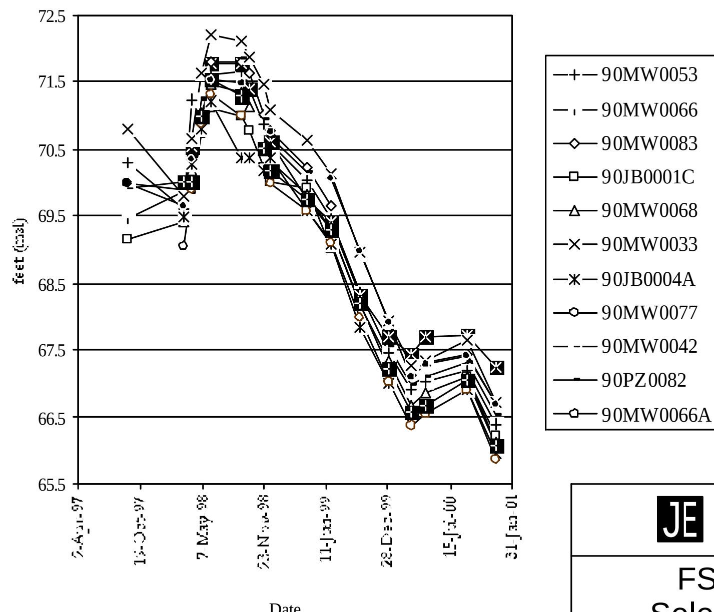
Figure 5-2

L:\4Reports\Fs-12\FS12-An00-Sp\Corel\FS12-An00-Sp_17.CDR




DataSource:JacobsEngineeringGroupInc.,16February2001
SiteEnvironmentalEvaluation(SEE)Database

JE JACOBSENGINEERING

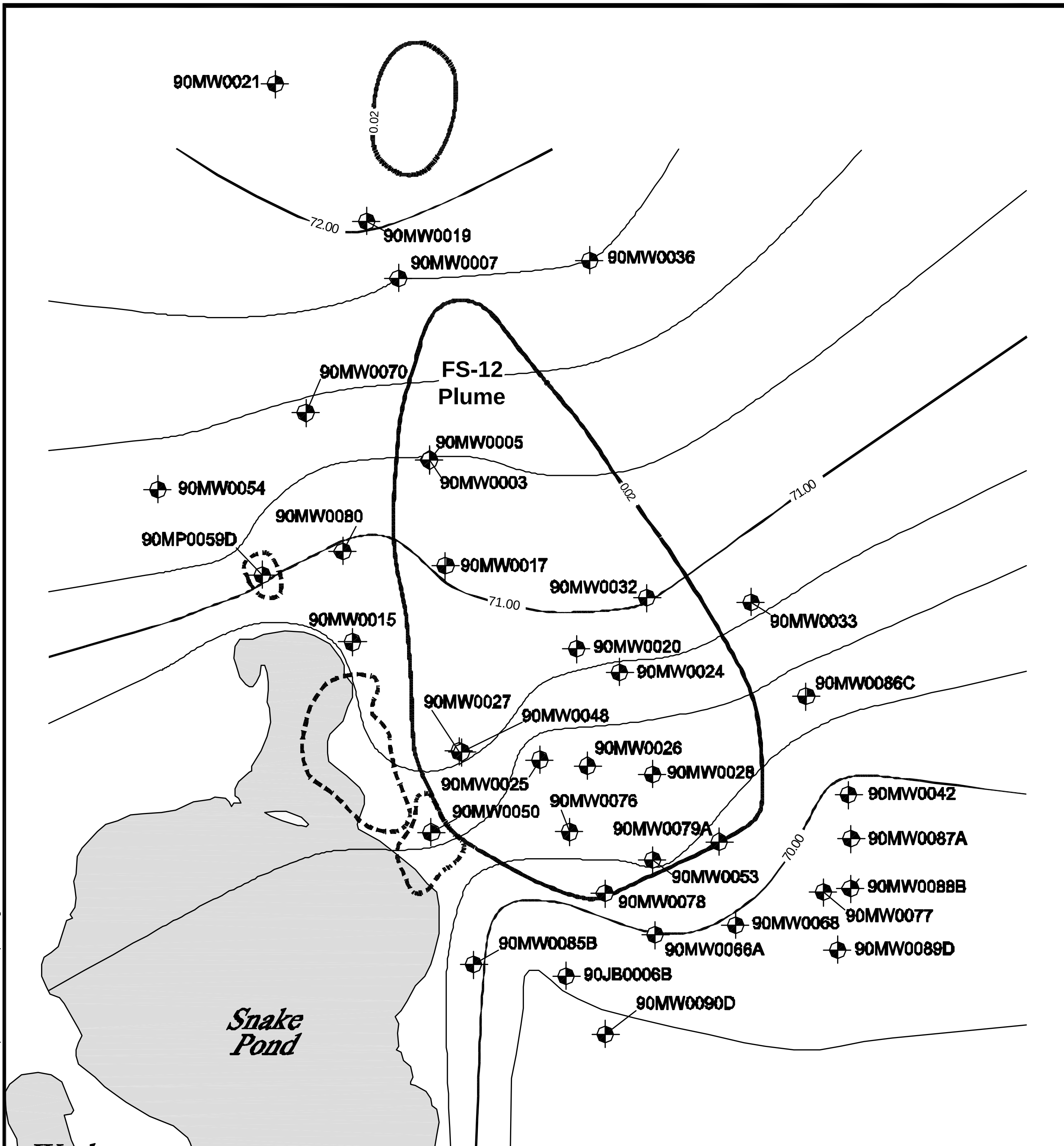
# FS-12 Hydrographs for Selected Monitoring Wells, September 1997 - December 2000

MassachusettsMilitaryReservation
CapeCod,Massachusetts

3/22/01scFS12-An00-Sp_18.cdr

Figure 5-3

L:\4Reports\Fs-12\FS12-An00-Sp\Corel\FS12-An00-Sp_18.CDR




Legend

Plume Contour (EDB MCL = 0.02 µg/L)

Plumelet Contour (EDB MCL = 0.02 µg/L)

04 September 1997 Elevation Contours

Monitoring Well

Data Source: Jacobs Engineering Group Inc., 01 February 2001, Site Environmental Evaluation (SEE) database.

N

0 700

Scale in Feet

JE JACOBS ENGINEERING

FS-12 SPEIM
Baseline Groundwater Contours
04 September 1997

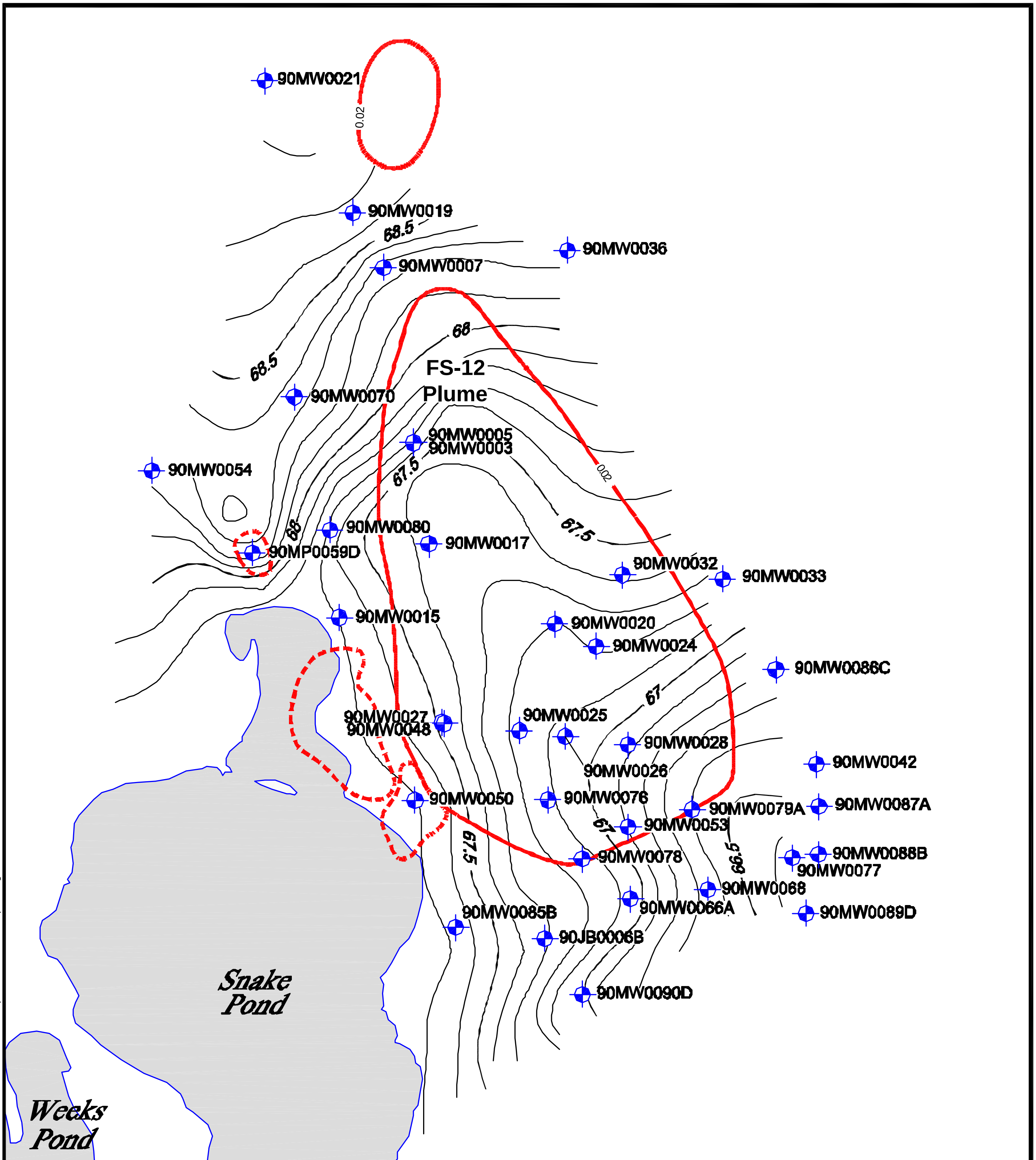
Massachusetts Military Reservation
Cape Cod, Massachusetts

05/14/01 WR FS12-An00-Sp-20.dwg

Figure 5-4

L:\4-REPORTS \FS-12 \FS12-An00-Sp \CAD \FS12-An00-Sp-20.dwg

last modified: 05/14/01 printed: 12/24/01 by Wr




## Legend

Plume Contour
(EDB MCL = 0.02 μg/L)

Plumelet Contour
(EDB MCL = 0.02 μg/L)

13 March 2000
Elevation Contours

Monitoring Well

Data Source: Jacobs Engineering Group Inc., 01 February 2001,
Site Environmental Evaluation (SEE) database.

N

0 700
Scale in Feet

JACOBS ENGINEERING

# FS-12 SPEIM
# Groundwater Contours
# 13 March 2000

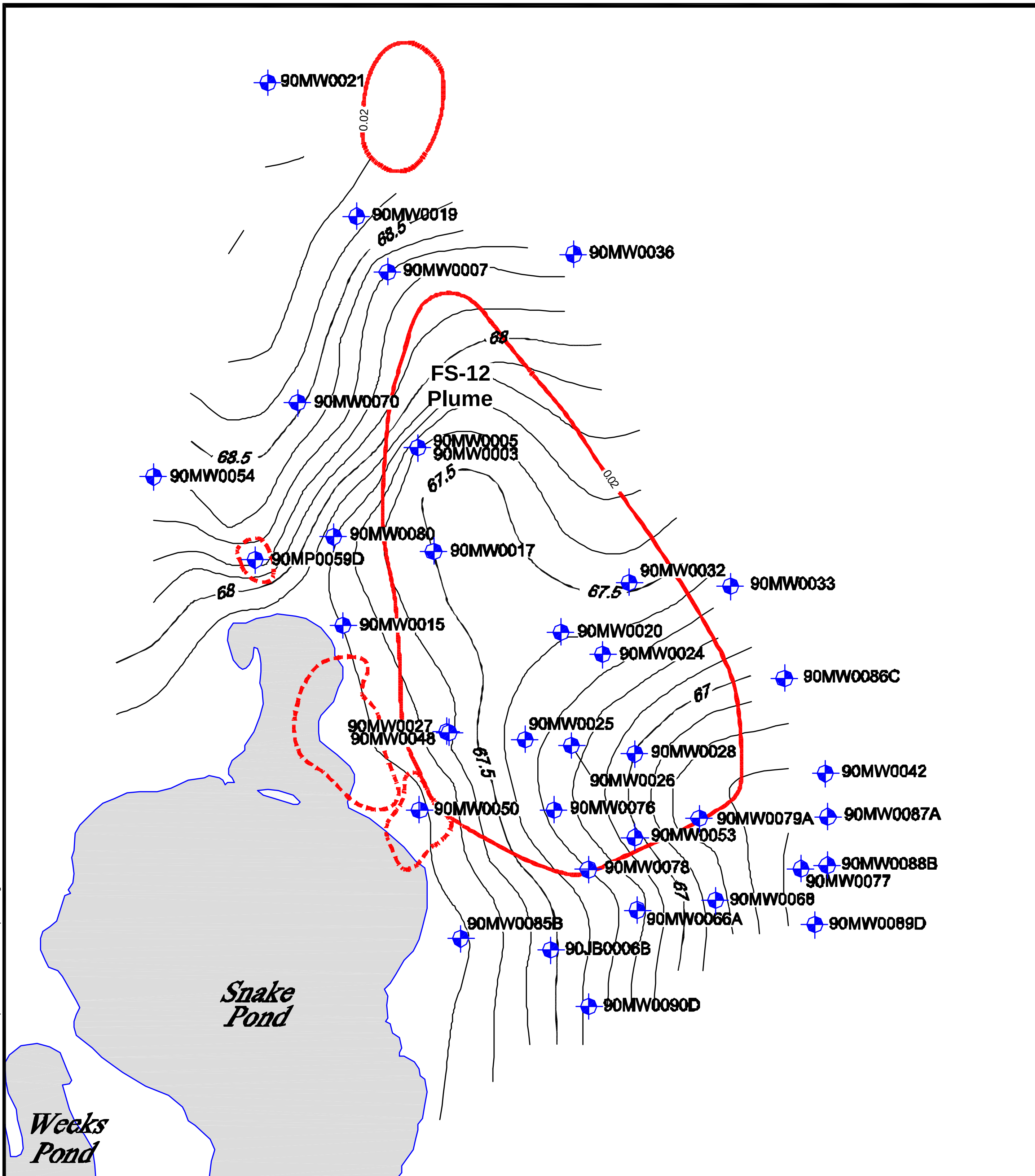
Massachusetts Military Reservation
Cape Cod, Massachusetts

05/14/01 WR FS12-An00-Sp-21.dwg

Figure 5-5

L:\4-REPORTS \FS-12\FS12-An00-Sp \CAD\FS12-An00-Sp-21.dwg

last modified: 05/14/01 printed: 12/24/01 by Wr




L:\4-REPORTS \FS-12 \FS12-An00-Sp \CAD \FS12-An00-Sp-22.dwg

last modified: 05/14/01 printed: 12/24/01 by Wr

Legend

Plume Contour (EDB MCL = 0.02 µg/L)

Plumelet Contour (EDB MCL = 0.02 µg/L)

01 May 2000 Elevation Contours

Monitoring Well

Data Source: Jacobs Engineering Group Inc., 01 February 2001, Site Environmental Evaluation (SEE) database.

N

0 700

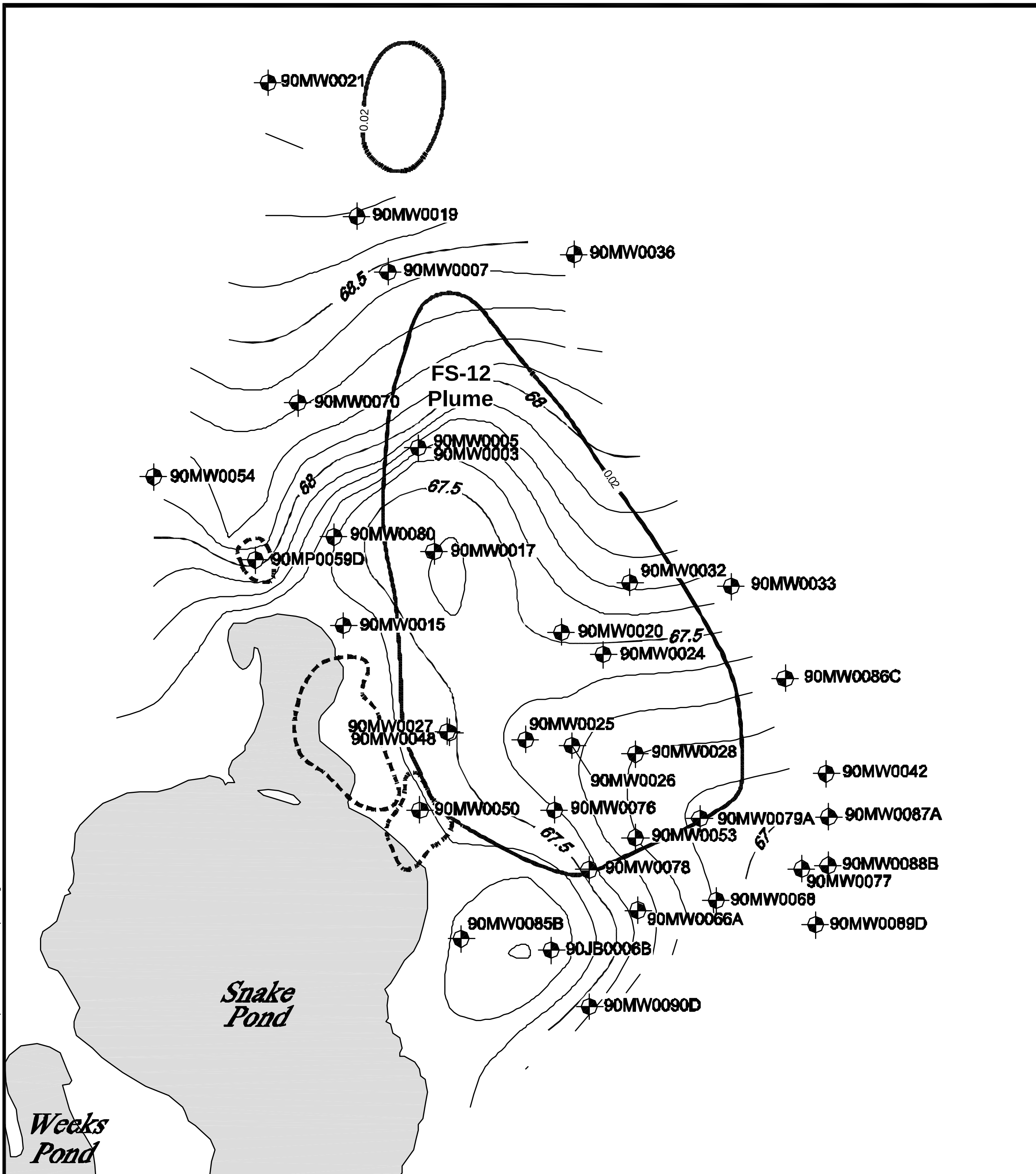
Scale in Feet

JACOBS ENGINEERING

FS-12 SPEIM
Groundwater Contours
01 May 2000
Massachusetts Military Reservation
Cape Cod, Massachusetts

05/14/01 WR FS12-An00-Sp-22.dwg

Figure 5-6




Legend

Plume Contour
(EDB MCL = 0.02 µg/L)

Plumelet Contour
(EDB MCL = 0.02 µg/L)

07 September 2000
Elevation Contours

Monitoring Well

Data Source: Jacobs Engineering Group Inc., 01 February 2001,
Site Environmental Evaluation (SEE) database.

N

0 700

Scale in Feet

JE JACOBS ENGINEERING

FS-12 SPEIM
Groundwater Contours
07 September 2000

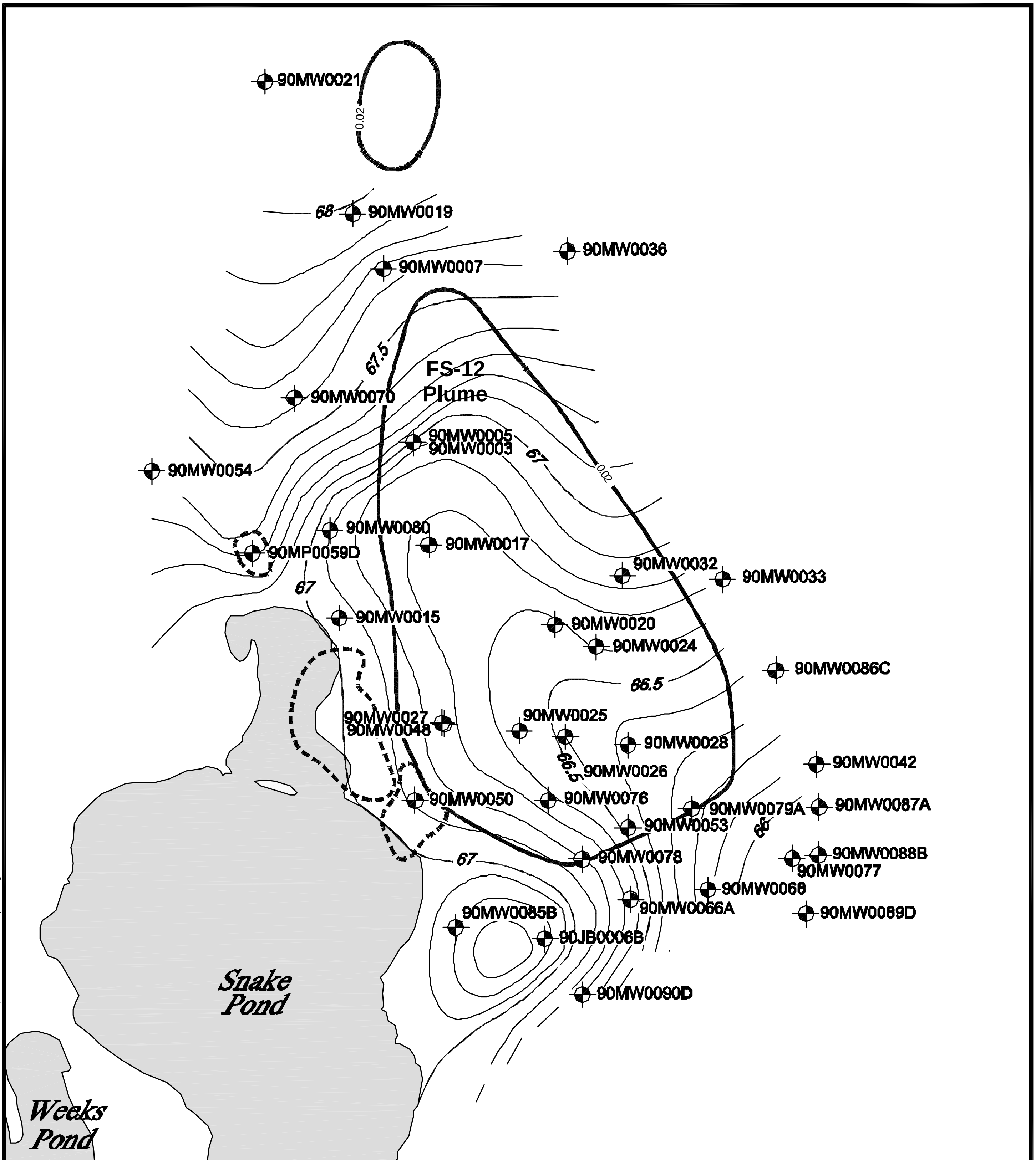
Massachusetts Military Reservation
Cape Cod, Massachusetts

05/14/01 WR FS12-An00-Sp-23.dwg

Figure 5-7

L:\4-REPORTS \FS-12\FS12-An00-Sp \CAD\FS12-An00-Sp-23.dwg

last modified: 05/14/01 printed: 12/24/01 by Wr




## Legend

Plume Contour
(EDB MCL = 0.02 µg/L)

Plumelet Contour
(EDB MCL = 0.02 µg/L)

08 December 2000
Elevation Contours

Monitoring Well

Data Source: Jacobs Engineering Group Inc., 01 February 2001,
Site Environmental Evaluation (SEE) database.

N

0 700
Scale in Feet

JE JACOBS ENGINEERING

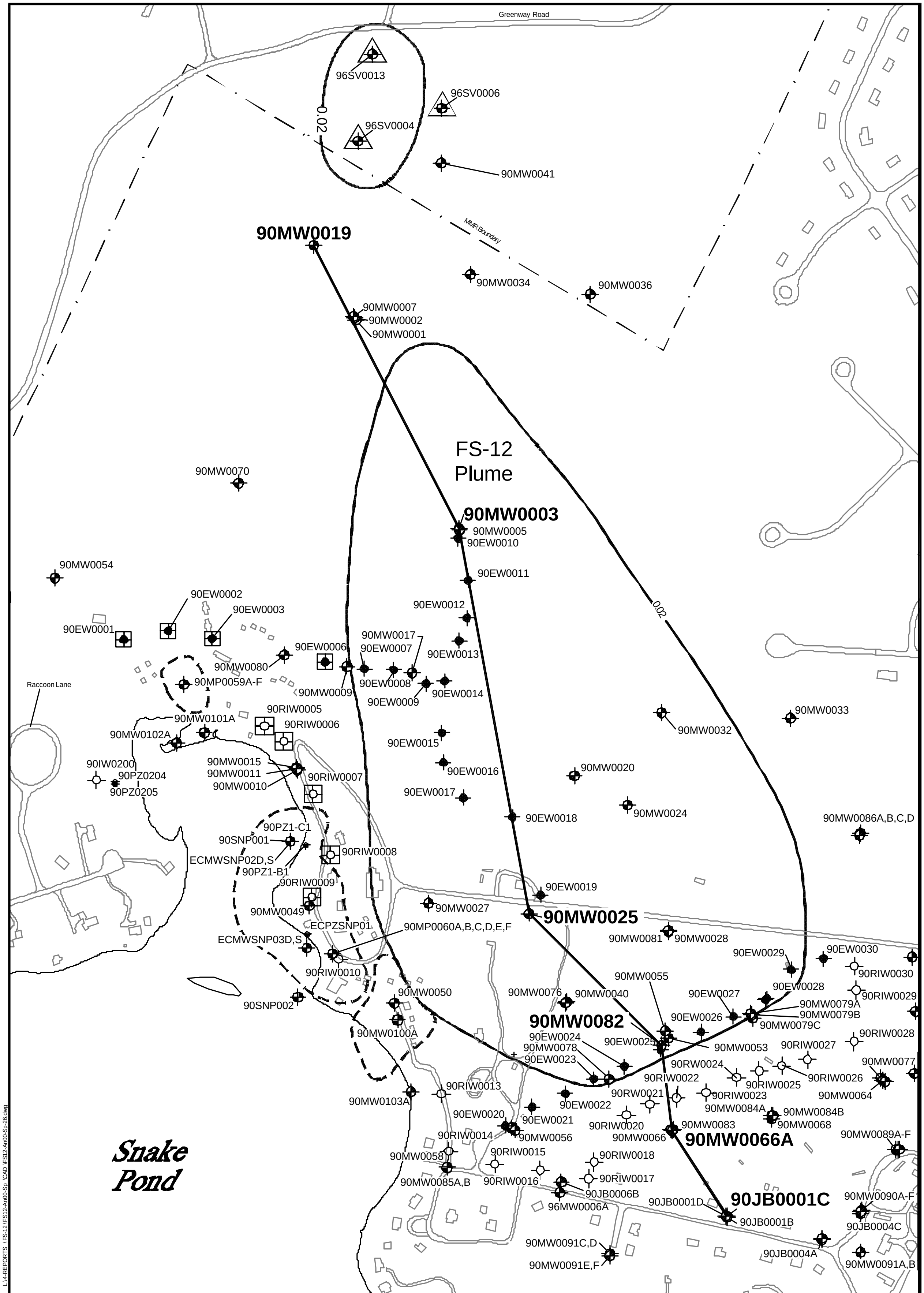
# FS-12 SPEIM
# Groundwater Contours
# 08 December 2000

Massachusetts Military Reservation
Cape Cod, Massachusetts

05/14/01 WR FS12-An00-Sp-24.dwg

Figure 5-8

L:\4-REPORTS \FS-12\FS12-An00-Sp \CAD\FS12-An00-Sp-24.dwg
last modified: 05/14/01 printed: 12/24/01 by Wr




## Legend

| | | |
|---|---|---|
| Monitoring Well | Source Well | Plume Contour (EDB MCL = 0.02 µg/L) |
| Extraction Well | Non-Operable Reinjection Well | Plumelet Contour (EDB MCL = 0.02 µg/L) |
| Piezometer | Non-Operable Extraction Well | |
| Reinjection Well | | |

0 500

Scale in Feet

JACOBS ENGINEERING

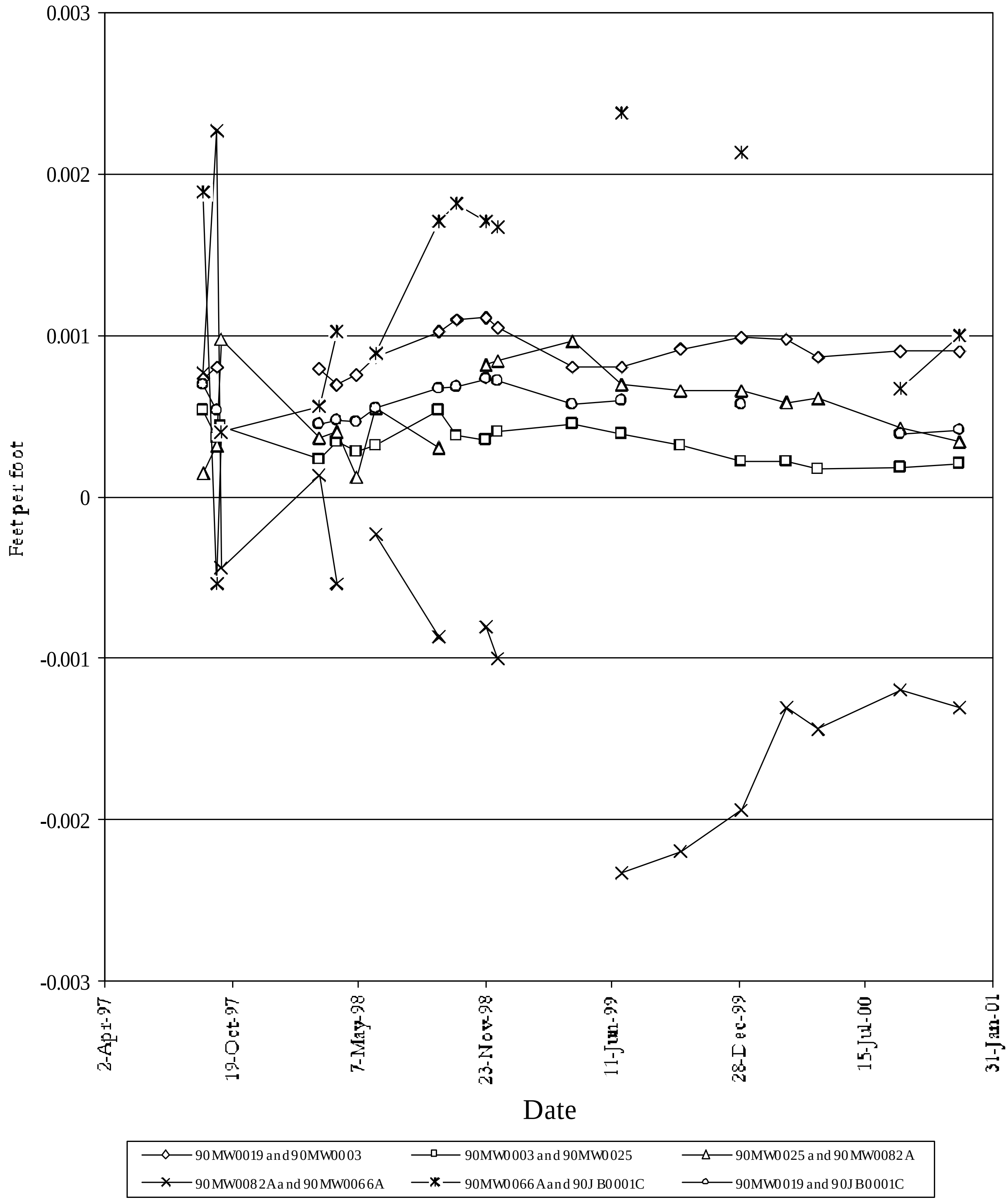
Locations of FS-12 Monitoring Wells Used for Horizontal Gradient Analysis

Massachusetts Military Reservation
Cape Cod, Massachusetts

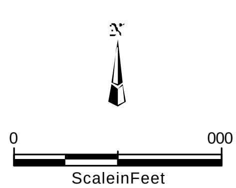
12/26/01 WR FS12-An00-Sp-26.dwg

Figure 5-9

last modified: 12/26/01 printed: 12/26/01 by Wr L:\14-REPORTS \FS-12\FS12-An00-Sp \CAD \FS12-An00-Sp-26.dwg




Legend




JACOBSENGINEERING

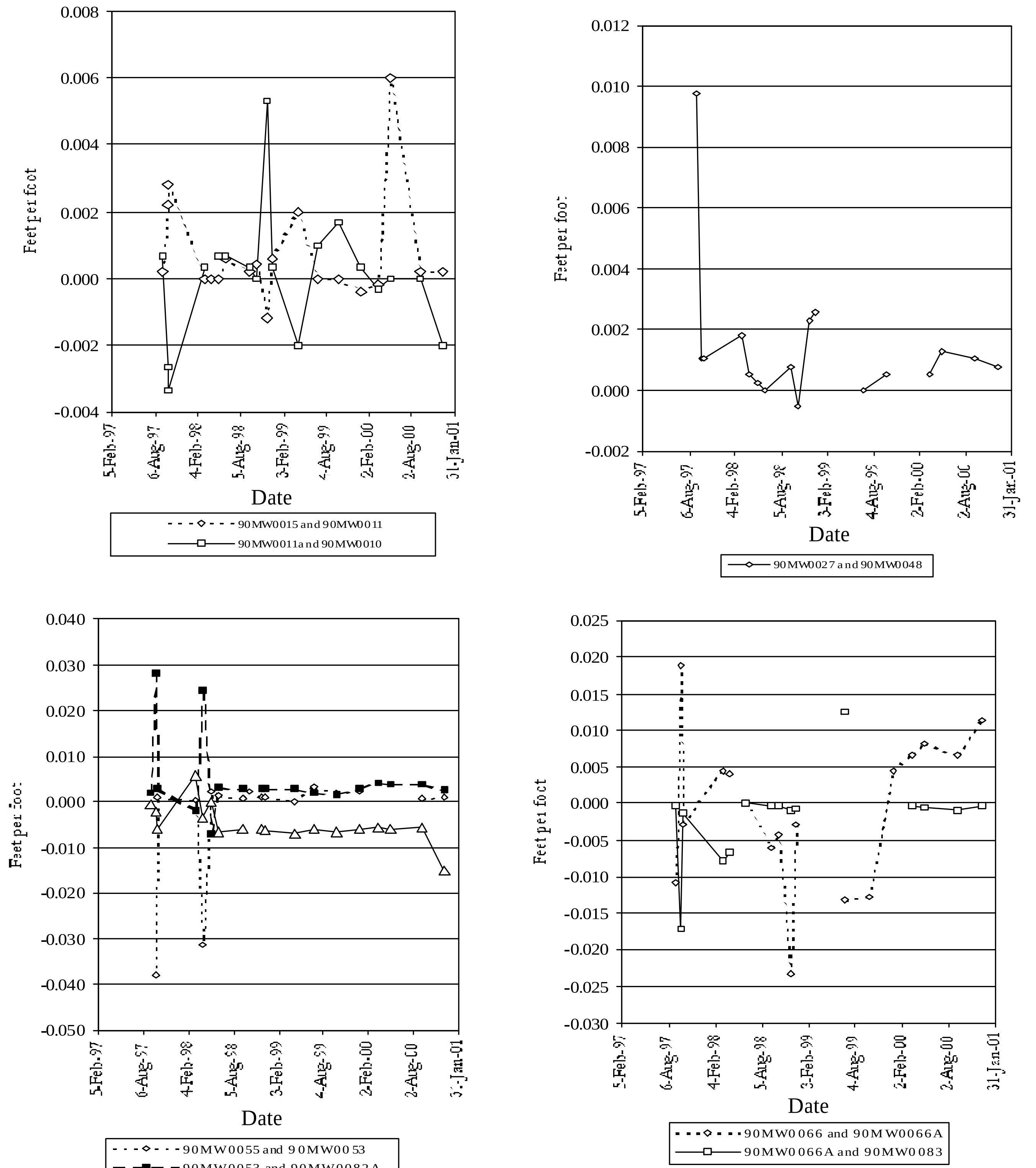
Horizontal Hydraulic Gradients for Selected SPEIM Monitoring Well Combinations

Massachusetts Military Reservation
CapeCod,Massachusetts

3/22/01scFS12-An00-Sp_25.cdr

Figure 5-10

L:\4Reports\Fs-12\FS12-An00-Sp\Corel\FS12-An00-Sp_25.CDR




JACOBSENGINEERING

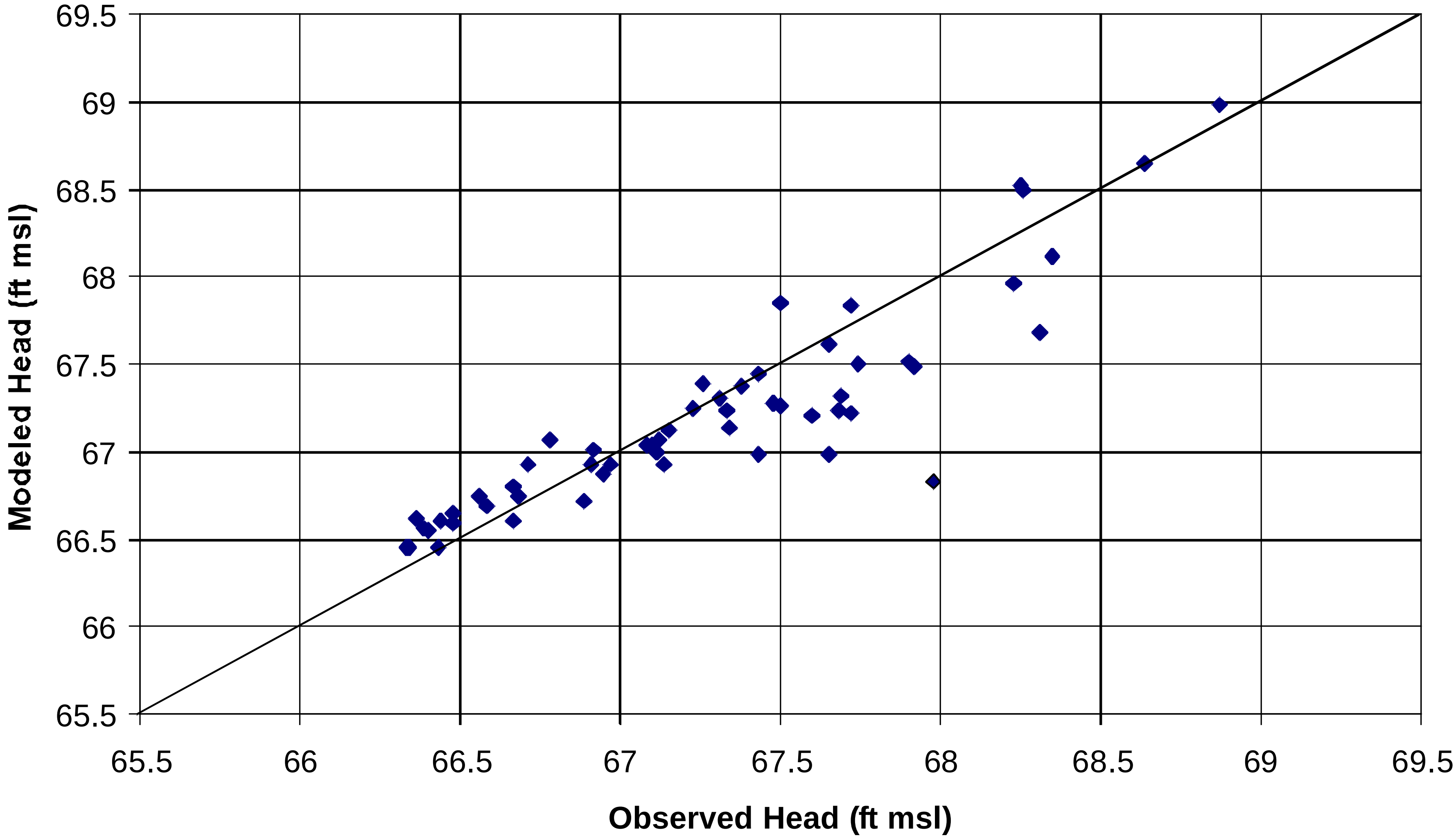
# Vertical Hydraulic Gradients for Selected SPEIM Monitoring Well Combinations

Massachusetts Military Reservation
CapeCod,Massachusetts

3/22/01scFS12-An00-Sp_26.cdr

Figure 5-11

L:\4Reports\Fs-12\FS12-An00-Sp\Corel\FS12-An00-Sp_26.CDR




**Note:Model-predictedvalueshavebeenscaledby0.45ft.**

DataSources:
JacobsEngineeringGroup Inc.,16February2001
SiteEnvironmentalEvaluation(SEE)Databaseand
OtisANGB102ndOperations -Weather(1996-2000).

JE JACOBSENGINEERING

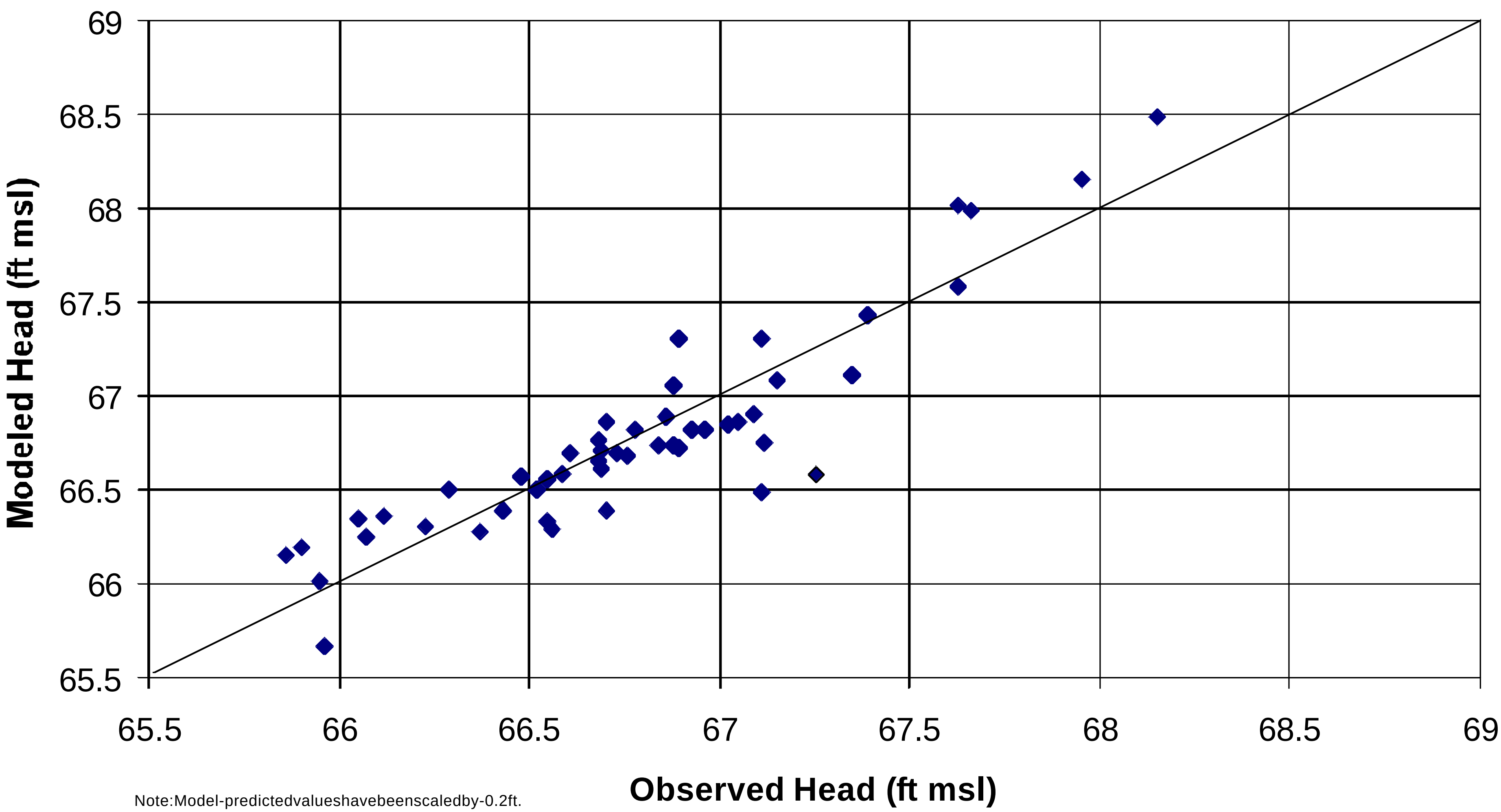
Average Operating Condition
Model-Predicted and
March 2000 Observed Heads

MassachusettsMilitaryReservation
CapeCod,Massachusetts

4/2/01scFS12-An00-Sp_27.cdr

Figure 5-12

L:\4Reports\Fs-12\FS12-An00-Sp\Corel\FS12-An00-Sp_27.CDR




Note:Model-predictedvalueshavebeenscaledby-0.2ft.

DataSources:
JacobsEngineeringGroup Inc.,16February2001
SiteEnvironmentalEvaluation(SEE)Databaseand
OtisANGB102ndOperations -Weather(1996-2000).

JACOBSENGINEERING

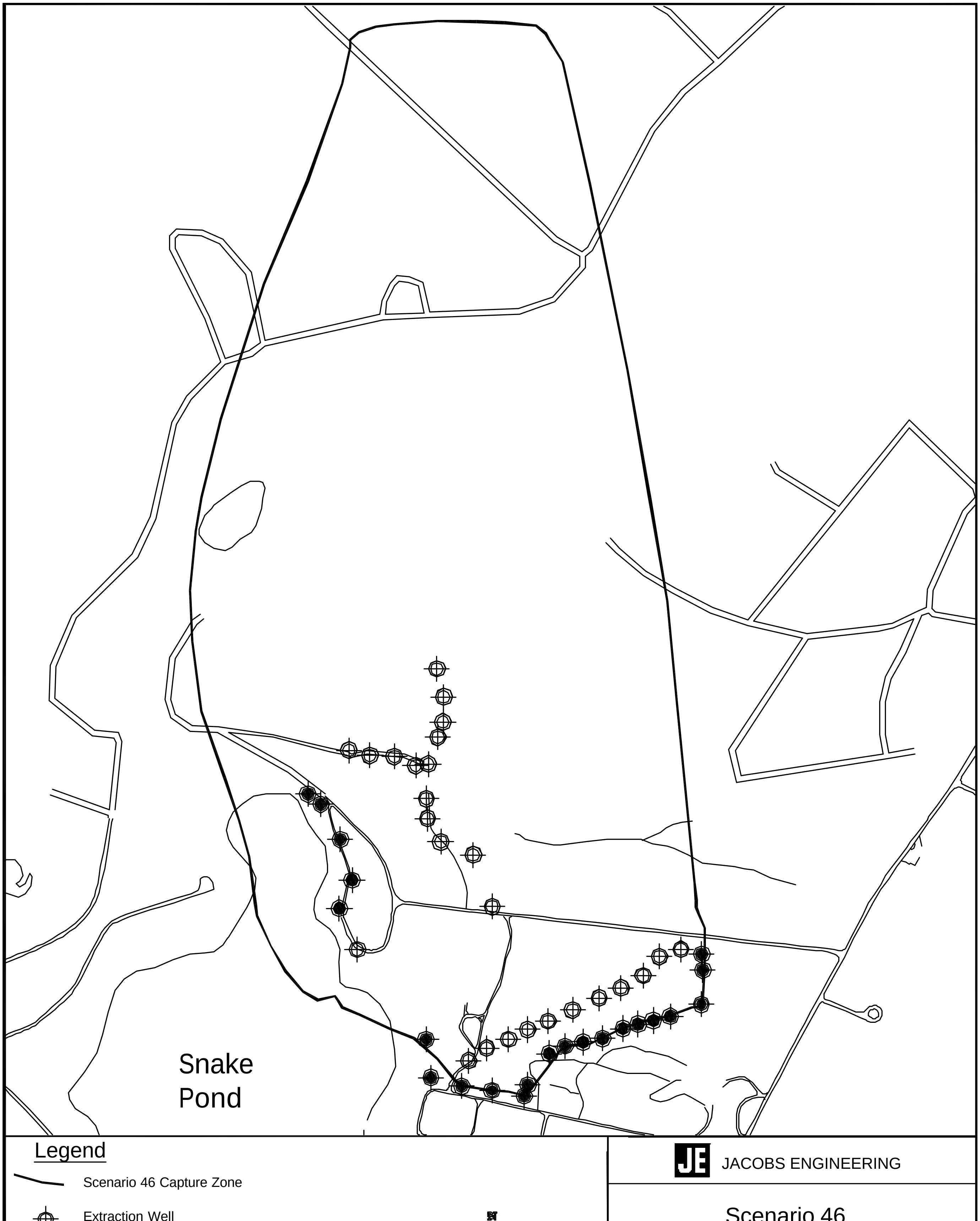
Scenario 24 Model-Predicted and December2000 Observed Heads

MassachusettsMilitaryReservation
CapeCod,Massachusetts

4/02/01scFS12-An00-Sp_28.cdr

Figure 5-13

L:\4Reports\Fs-12\FS12-An00-Sp\Corel\FS12-An00-Sp_28.CDR




JACOBS ENGINEERING

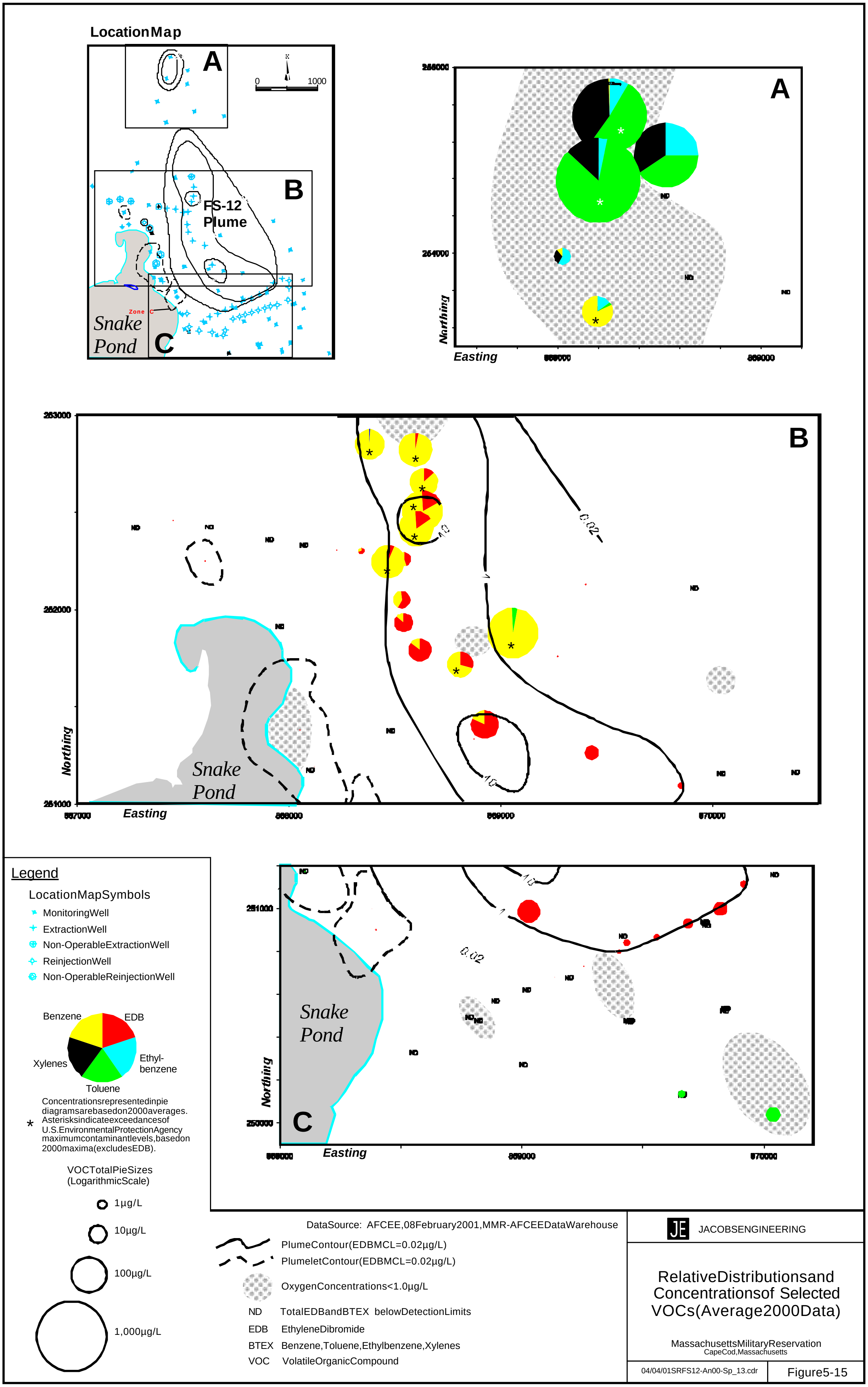
## Scenario 46
## Model-Predicted Capture Zone

Massachusetts Military Reservation
Cape Cod, Massachusetts

05/14/01 WR FS12-An00-Sp-01.dwg

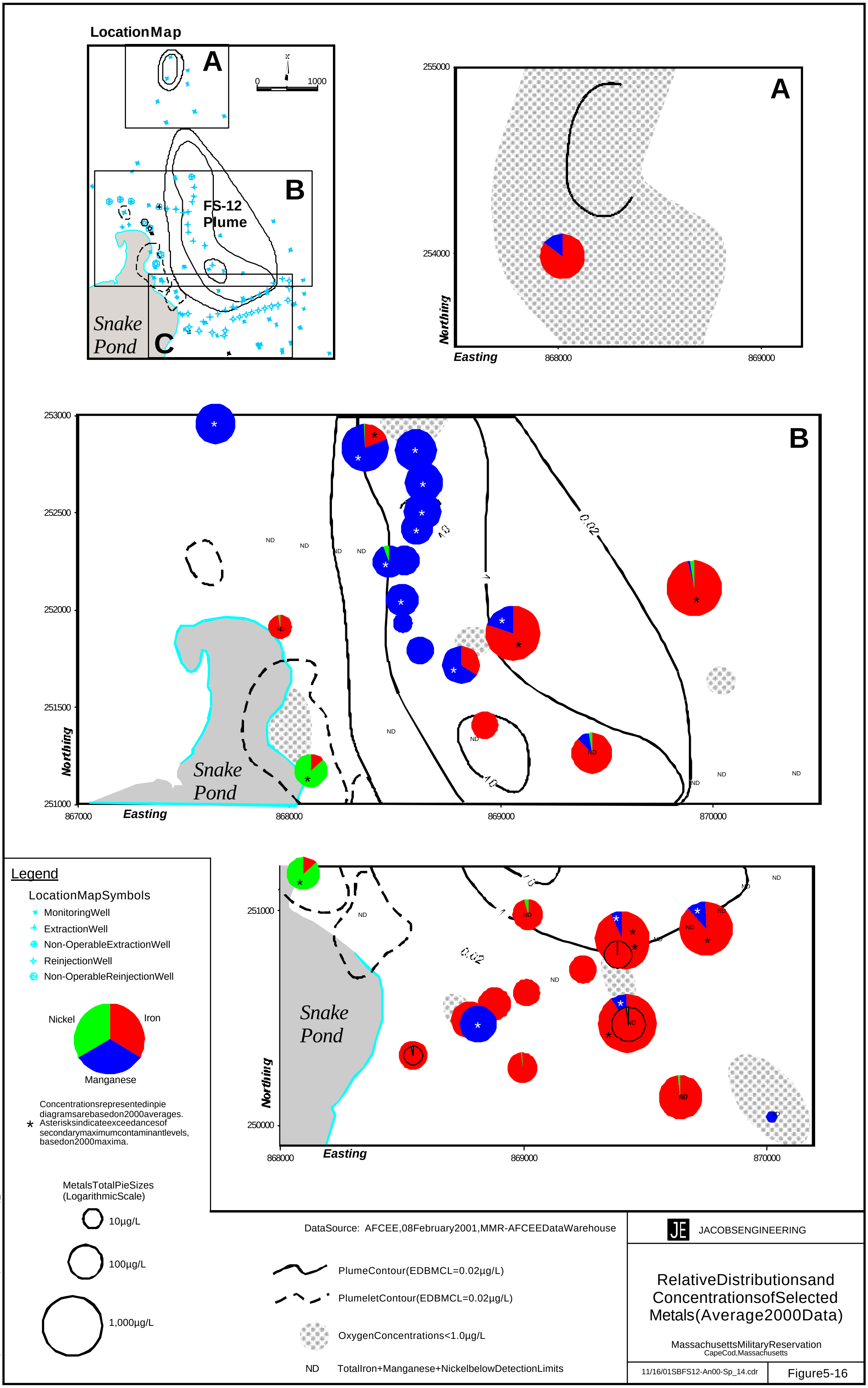
Figure 5-14

ast modified: 05/14/01 printed: 12/24/01 by Wr L:\4-REPORTS \FS-12 \FS12-An00-Sp \CAD \FS12-An00-Sp-01.dwg

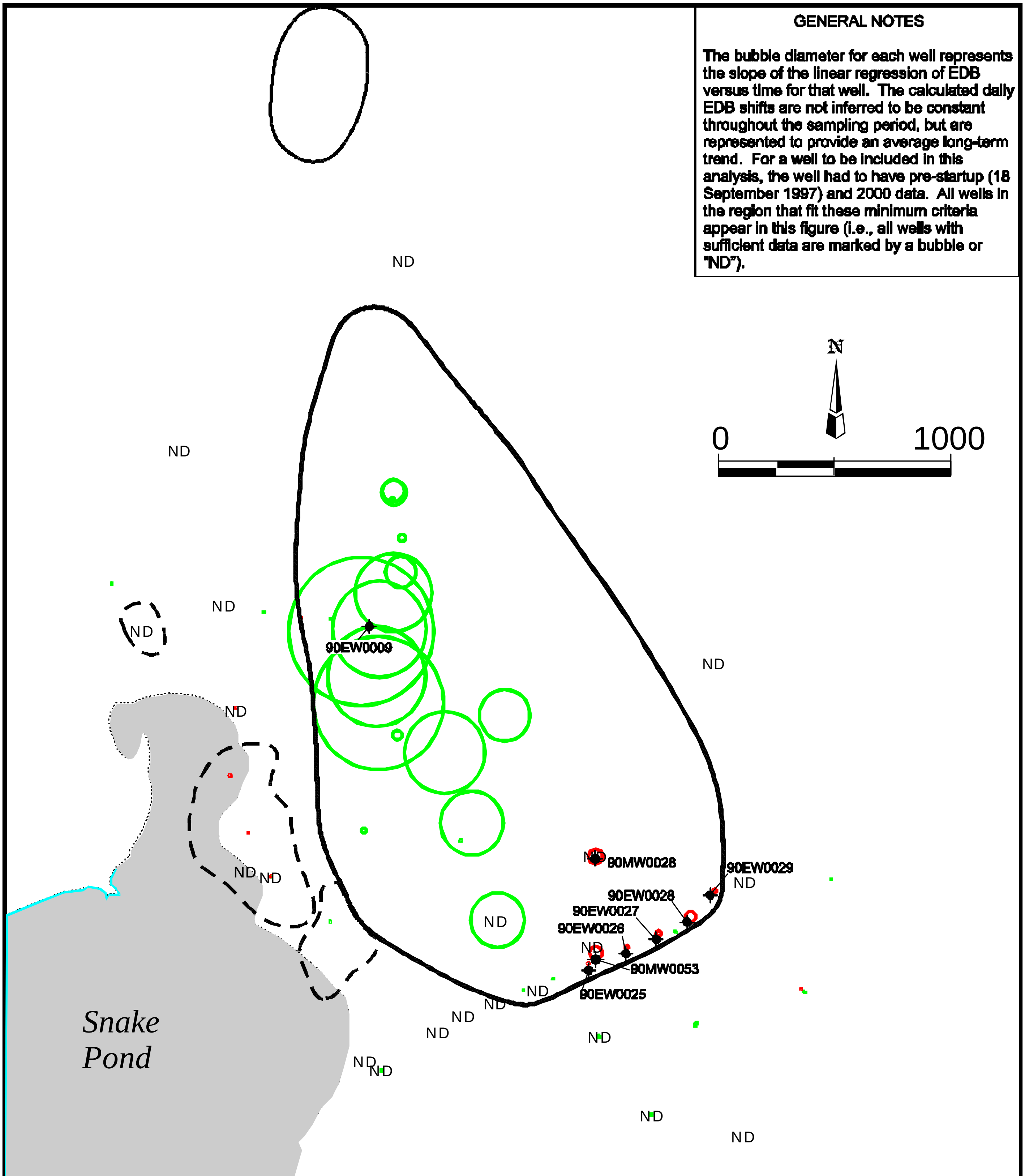



Relative Distributions and Concentrations of Selected VOCs (Average 2000 Data)

Figure 5-15



LocationMap
A
0
1000
B
FS-12
Plume
Snake
Pond
C
255000
254000
Northing
Easting
868000
869000
253000
252500
252000
251500
251000
867000
870000
ND
0.02
1
10
Snake Pond
251000
250000
Legend
LocationMapSymbols
MonitoringWell
ExtractionWell
Non-OperableExtractionWell
ReinjectionWell
Non-OperableReinjectionWell
Nickel
Iron
Manganese
Concentrationsrepresentedinpie diagramsarebasedon2000averages.
* Asterisksindicateexceedancesof secondarymaximumcontaminantlevels, basedon2000maxima.
MetalsTotalPieSizes (LogarithmicScale)
10µg/L
100µg/L
1,000µg/L
DataSource: AFCEE,08February2001,MMR-AFCEEDataWarehouse
PlumeContour(EDBMCL=0.02µg/L)
PlumeletContour(EDBMCL=0.02µg/L)
OxygenConcentrations<1.0µg/L
ND TotalIron+Manganese+NickelbelowDetectionLimits
JE JACOBSENGINEERING
RelativeDistributionsand ConcentrationsofSelected Metals(Average2000Data)
MassachusettsMilitaryReservation
CapeCod,Massachusetts
11/16/01SBFS12-An00-Sp_14.cdr
Figure5-16




**GENERAL NOTES**

The bubble diameter for each well represents the slope of the linear regression of EDB versus time for that well. The calculated daily EDB shifts are not inferred to be constant throughout the sampling period, but are represented to provide an average long-term trend. For a well to be included in this analysis, the well had to have pre-startup (18 September 1997) and 2000 data. All wells in the region that fit these minimum criteria appear in this figure (i.e., all wells with sufficient data are marked by a bubble or "ND").

Legend

DataSource: AFCEE,08February2001,MMR-AFCEEDataWarehouse

=EDBaveragechangeof 0.1µg/L/day

Green =DecreasingTrend
Red = IncreasingTrend
ND=EDBBelowDetectionLimits
EDB=EthyleneDibromide

2000EDBPlumeContour (EDB MCL=0.02µg/L)

2000PlumeletContour (EDB MCL=0.02µg/L)

MonitoringWell

JE JACOBSENGINEERING

# Rates of EDB Concentration Changes Since Treatment Plant Activation, 1997

Massachusetts Military Reservation
CapeCod,Massachusetts

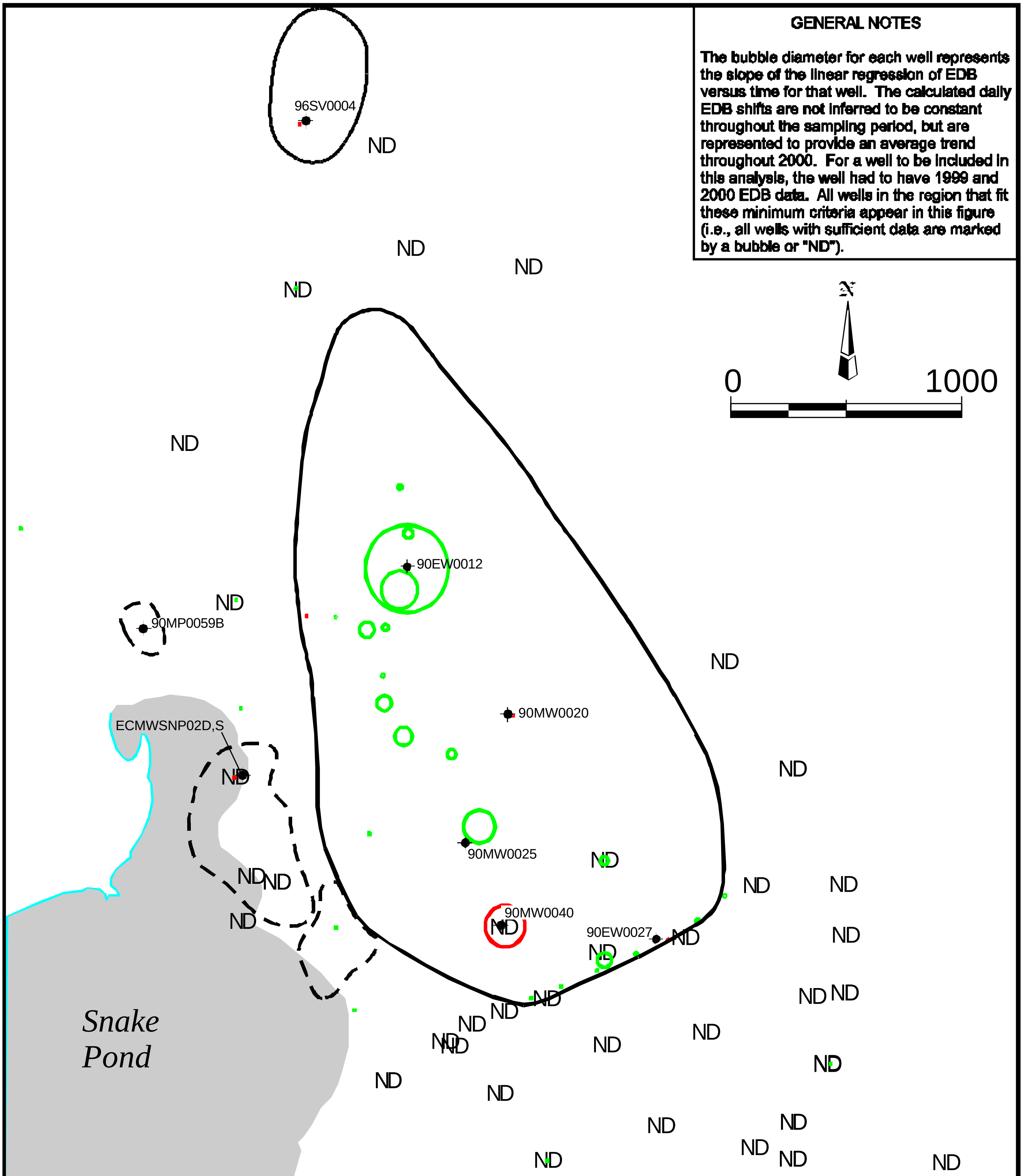
11/16/01 SB FS12-An00-Sp_10.cdr

Figure5-17

L:\04Reports\FS-12\FS12-An00-Sp\Core\MFS12-An00-Sp_10.cdr

**GENERAL NOTES**

The bubble diameter for each well represents the slope of the linear regression of EDB versus time for that well. The calculated daily EDB shifts are not inferred to be constant throughout the sampling period, but are represented to provide an average trend throughout 2000. For a well to be included in this analysis, the well had to have 1999 and 2000 EDB data. All wells in the region that fit these minimum criteria appear in this figure (i.e., all wells with sufficient data are marked by a bubble or "ND").




Legend

DataSource: AFCEE,08February2001,MMR-AFCEEDataWarehouse

Diameter=EDBAverage Changeof0.02µg/L/day

Green =DecreasingTrend
Red = IncreasingTrend
ND=EDBBelowDetectionLimits
EDB=EthyleneDibromide

2000EDBPlumeContour (EDB MCL=0.02µg/L)

2000PlumeletContour (EDB MCL=0.02µg/L)

MonitoringWell

JACOBSENGINEERING

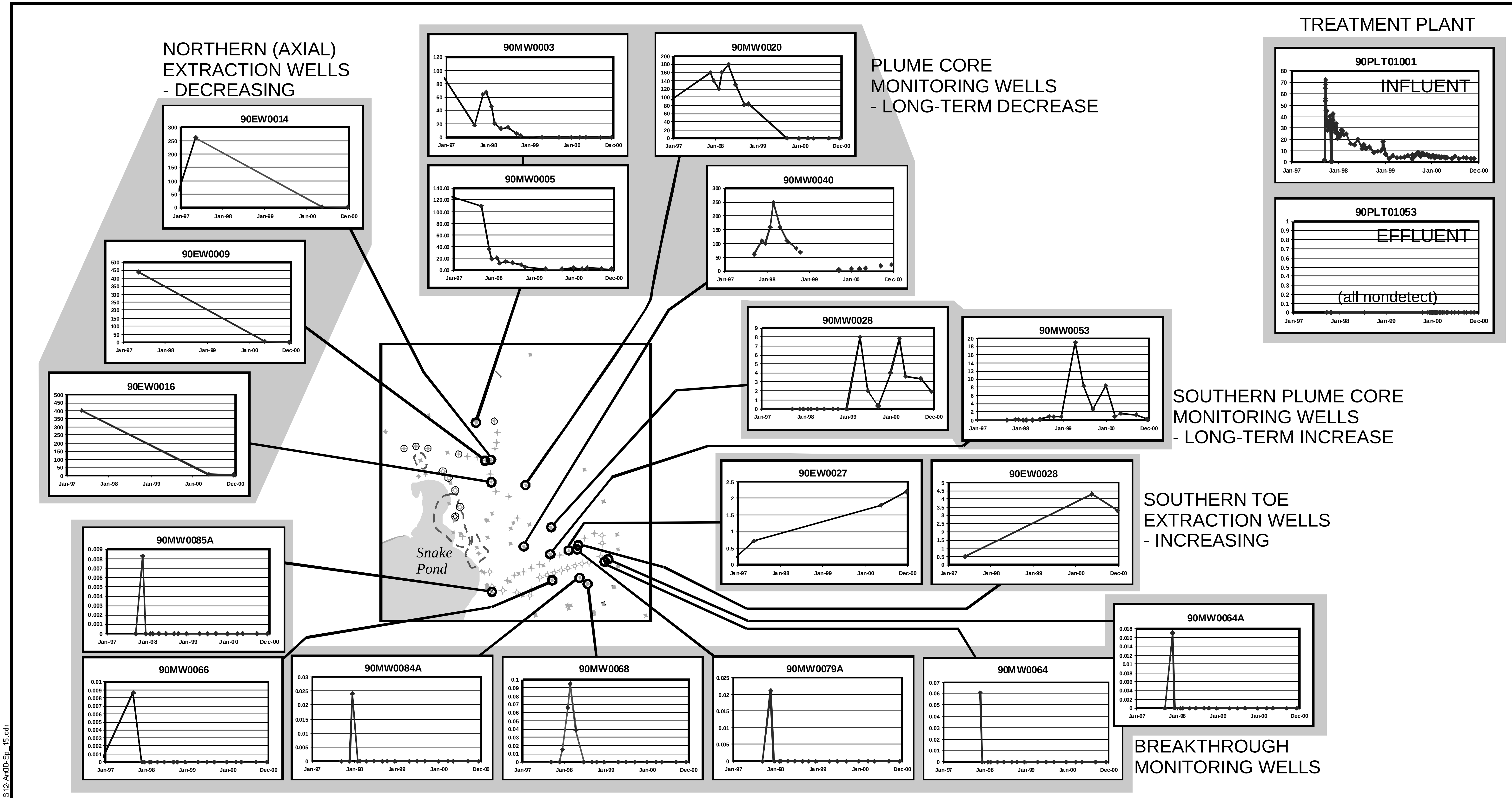
# Rates of EDB Concentration Changes Since 1999

Massachusetts Military Reservation
CapeCod,Massachusetts

11/16/01 SB FS12-An00-Sp_11.cdr

Figure5-18

L:\04Reports\FS-12\FS12-An00-Sp\CorelIFS12-An00-Sp_11.cdr




Legend

- Monitoring Well
- Extraction Well
- Non-Operable Extraction Well
- Reinjection Well
- Non-Operable Reinjection Well

EDB Plume Contour (EDB MCL=0.02µg/L)

Plumelet Contour (EDB MCL=0.02µg/L)

EDB Ethylene Dibromide

Data Source: AFCEE, 08 February 2001, MMR-AFCEE Data Warehouse

JACOBS ENGINEERING

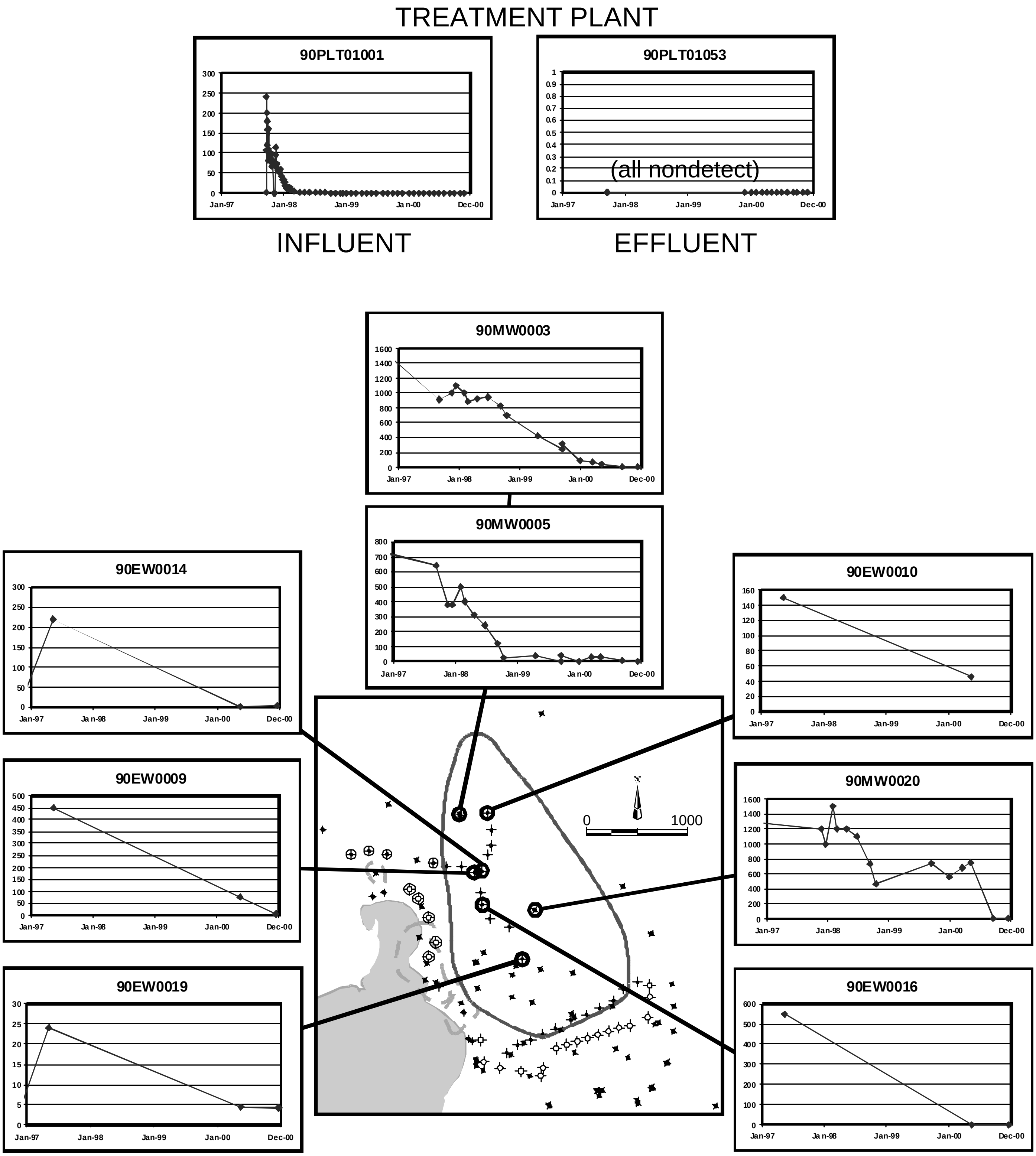
EDB Concentration Trends in Selected Monitoring and Extraction Wells and Treatment Plant Samples

Massachusetts Military Reservation

Cape Cod, Massachusetts

03/22/01 SCFS12-An00-Sp_15.cdr

Figure 5-19




## Legend

- MonitoringWell
- ExtractionWell
- Non-OperableExtractionWell
- ReinjectionWell
- Non-OperableReinjectionWell

EDBPlumeContour(EDBMCL=0.02µg/L)

PlumeletContour(EDBMCL=0.02µg/L)

EDB EthyleneDibromide

DataSource: AFCEE,08February2001,MMR-AFCEEDataWarehouse

JE JACOBSENGINEERING

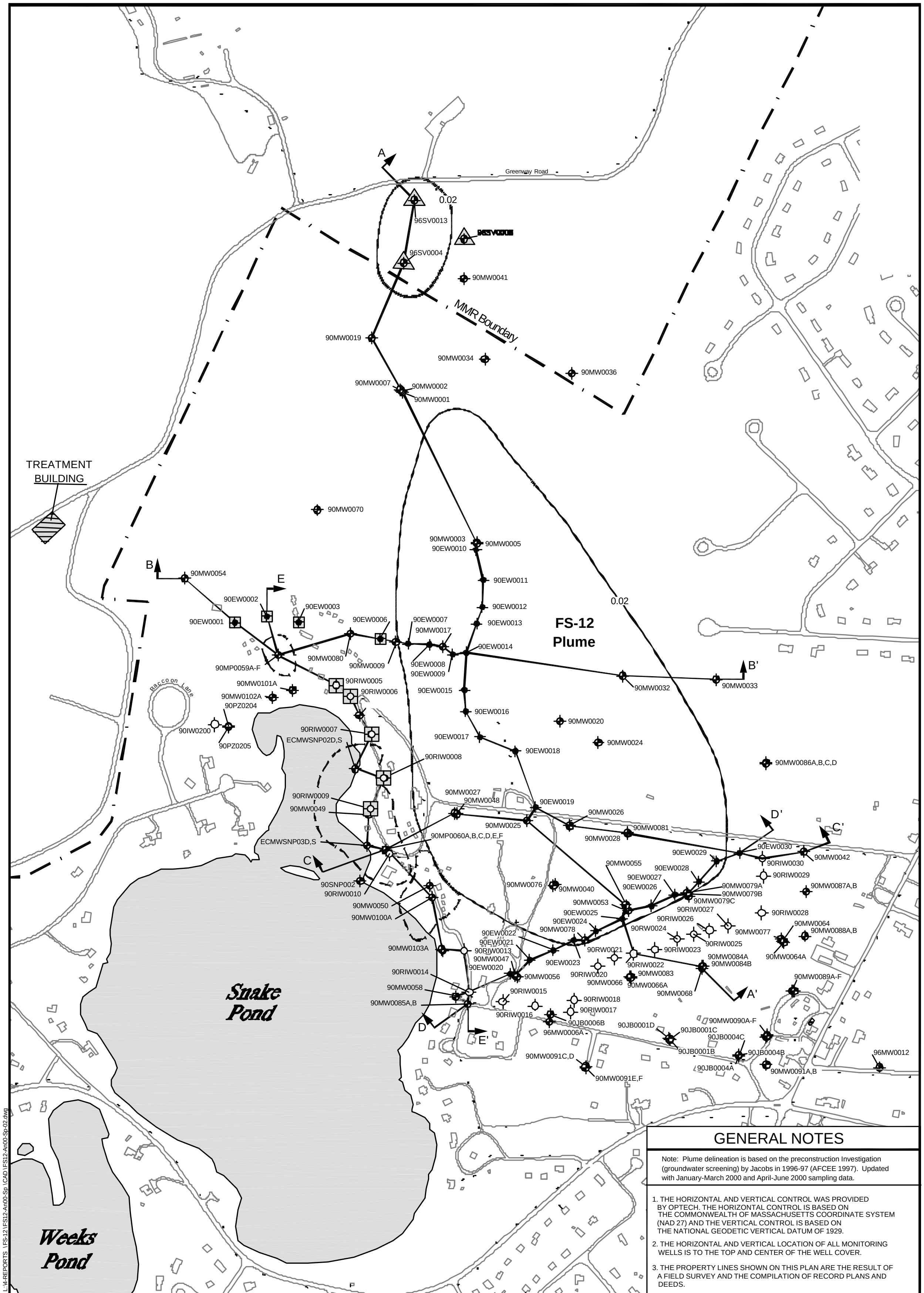
# Benzene Concentration Trends in Selected Monitoring and Extraction Wells andTreatment Plant Samples

Massachusetts Military Reservation
CapeCod,Massachusetts

03/21/01 SCFS12-An00-Sp_09.cdr

Figure5-20

L:\04Reports\FS-12\FS12-An00-Sp\Corel\FS12-An00-Sp_09.cdr




## GENERAL NOTES

Note: Plume delineation is based on the preconstruction Investigation (groundwater screening) by Jacobs in 1996-97 (AFCEE 1997). Updated with January-March 2000 and April-June 2000 sampling data.

1. THE HORIZONTAL AND VERTICAL CONTROL WAS PROVIDED BY OPTECH. THE HORIZONTAL CONTROL IS BASED ON THE COMMONWEALTH OF MASSACHUSETTS COORDINATE SYSTEM (NAD 27) AND THE VERTICAL CONTROL IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929.
2. THE HORIZONTAL AND VERTICAL LOCATION OF ALL MONITORING WELLS IS TO THE TOP AND CENTER OF THE WELL COVER.
3. THE PROPERTY LINES SHOWN ON THIS PLAN ARE THE RESULT OF A FIELD SURVEY AND THE COMPILATION OF RECORD PLANS AND DEEDS.

**Legend**

- Monitoring Well
- Extraction Well
- Piezometer
- Reinjection Well
- Source Well
- Non-Operable Reinjection Well
- Non-Operable Extraction Well
- Plume Contour (EDB MCL = 0.02 µg/L)
- Plumelet Contour (EDB MCL = 0.02 µg/L)

0 500
Scale in Feet

JACOBS ENGINEERING

**Lines of Cross-Section at FS-12**

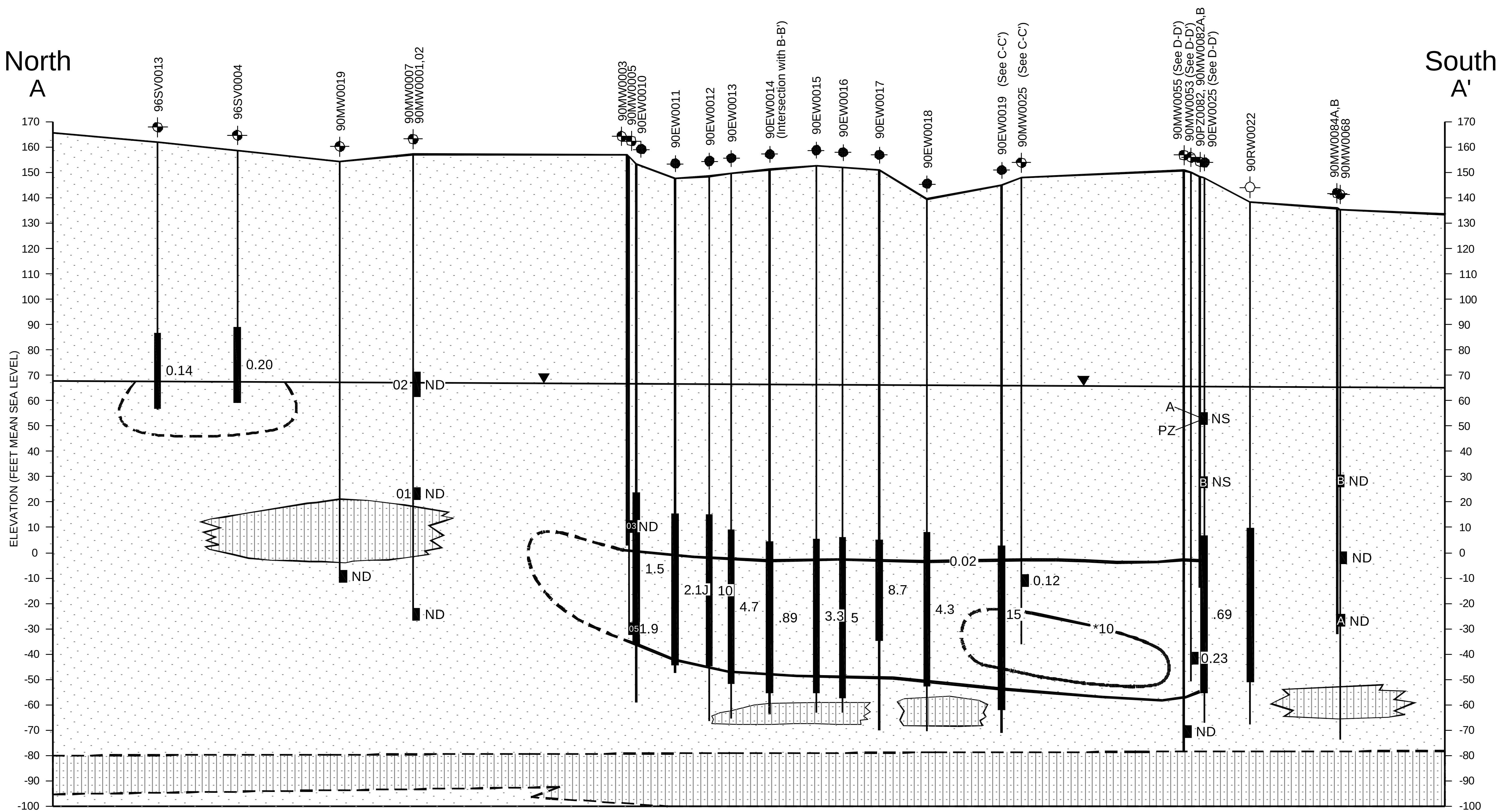
Massachusetts Military Reservation
Cape Cod, Massachusetts

05/15/01 WR FS12-An00-Sp-02.dwg

Figure 5-21

L:\4-REPORTS \FS-12\FS12-An00-Sp \CAD\FS12-An00-Sp-02.dwg

last modified 05/15/01 printed 12/24/01 by Wr




## Legend

| | |
|---|---|
| Monitoring Well | |
| Extraction Well | |
| Reinjection Well | |
| 0.02 | EDB Isoconcentration Contour (µg/L) (December 2000) |
| 0.12 | EDB Concentration in µg/L |
| | Estimated Contours |
| A | Well Screen |
| ND | Nondetect |
| NS | Not Sampled |
| J | Estimated Concentration |
| | Water Table |
| | Sand |
| | Silty Sand |

Data Source (1 October 2000 - 31 December 2000): AFCEE, 29 January 2001, MMR-AFCEE Data Warehouse; data source for previous quarters outlined in quarterly reports.

* EDB 10 µg/L isocontour inferred from data collected at monitoring well 90MW0040 in December 2000 and groundwater flow velocities.

Sampling results presented represent the most recent groundwater sampling event in 2000.

NOTE: Stratigraphy is based on the preconstruction investigation (groundwater screening) by Jacobs in 1996 - 97 (AFCEE 1997). Plume contour and stratigraphy are dashed where inferred.

0 V: 40 H: 450

Scale in Feet

JACOBS ENGINEERING

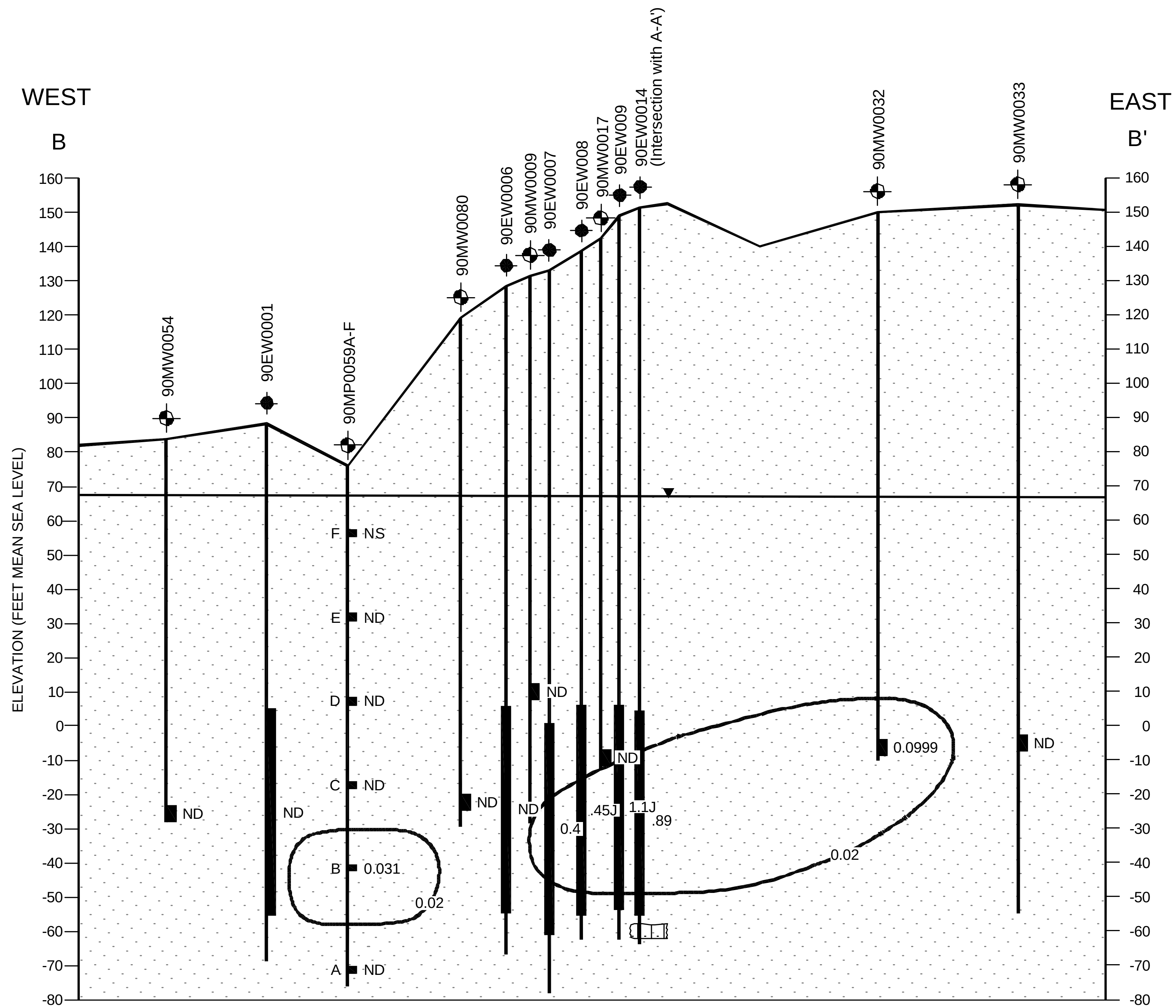
December 2000 SPEIM
Cross-Section A-A' at FS-12

Massachusetts Military Reservation
Cape Cod, Massachusetts

05/17/01 WR FS12-An00-Sp-12.dwg

Figure 5-22

last modified: 05/17/01 printed: 12/24/01 by Wr L:\4-REPORTS \FS-12\FS12-An00-Sp \CAD\FS12-An00-Sp-12.dwg




## Legend

Monitoring Well

Extraction Well

A Well Screen

0.02 EDB Isoconcentration Contour (µg/L) (December 2000)

0.4 EDB Concentration in µg/L

ND Nondetect

NS Not Sampled

J Estimated Concentration

Water Table

Data Source (1 October 2000 - 31 December 2000): AFCEE, 29 January 2001, MMR-AFCEE Data Warehouse; data source for previous quarters outlined in quarterly reports.

Sand

Sampling results presented represent the most recent groundwater sampling event in 2000.

NOTE: Stratigraphy is based on the preconstruction investigation (groundwater screening) by Jacobs in 1996 - 97 (AFCEE 1997). Plume contour and stratigraphy are dashed where inferred.

0 V: 40 H: 500

Scale in Feet

JACOBS ENGINEERING

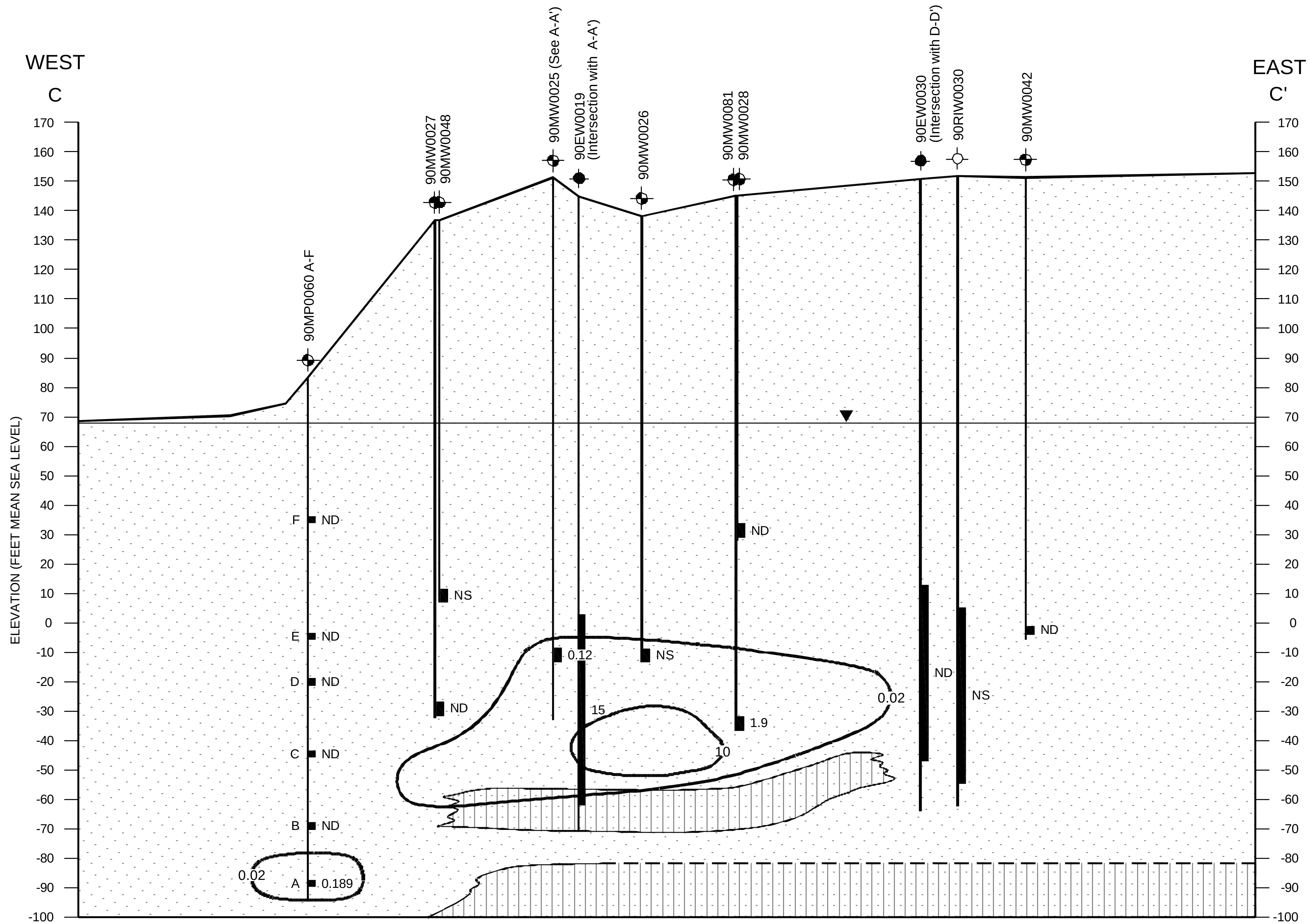
December 2000 SPEIM
Cross-Section B-B' at FS-12

Massachusetts Military Reservation
Cape Cod, Massachusetts

05/17/01 WR FS12-An00-Sp-13.dwg

Figure 5-23

last modified: 05/17/01 printed: 12/24/01 by Wr L:\4-REPORTS \FS-12\FS12-An00-Sp \CAD\FS12-An00-Sp-13.dwg




## Legend

| | | |
|---|---|---|
| Monitoring Well | 0.02 EDB Isoconcentration Contour (µg/L) (December 2000) | ND Nondetect |
| Extraction Well | 0.12 EDB Concentration in µg/L | NS Not Sampled |
| Reinjection Well | A Well Screen | J Estimated Concentration |
| | | Water Table |

Sand

Silty Sand

Data Source (1 October 2000 - 31 December 2000): AFCEE, 29 January 2001, MMR-AFCEE Data Warehouse; data source for previous quarters outlined in quarterly reports.

Sampling results presented represent the most recent groundwater sampling event in 2000.

NOTE: Stratigraphy is based on the preconstruction investigation (groundwater screening) by Jacobs in 1996 - 97 (AFCEE 1997). Plume contour and stratigraphy are dashed where inferred.

V: 40
H: 400
0
Scale in Feet

JACOBS ENGINEERING

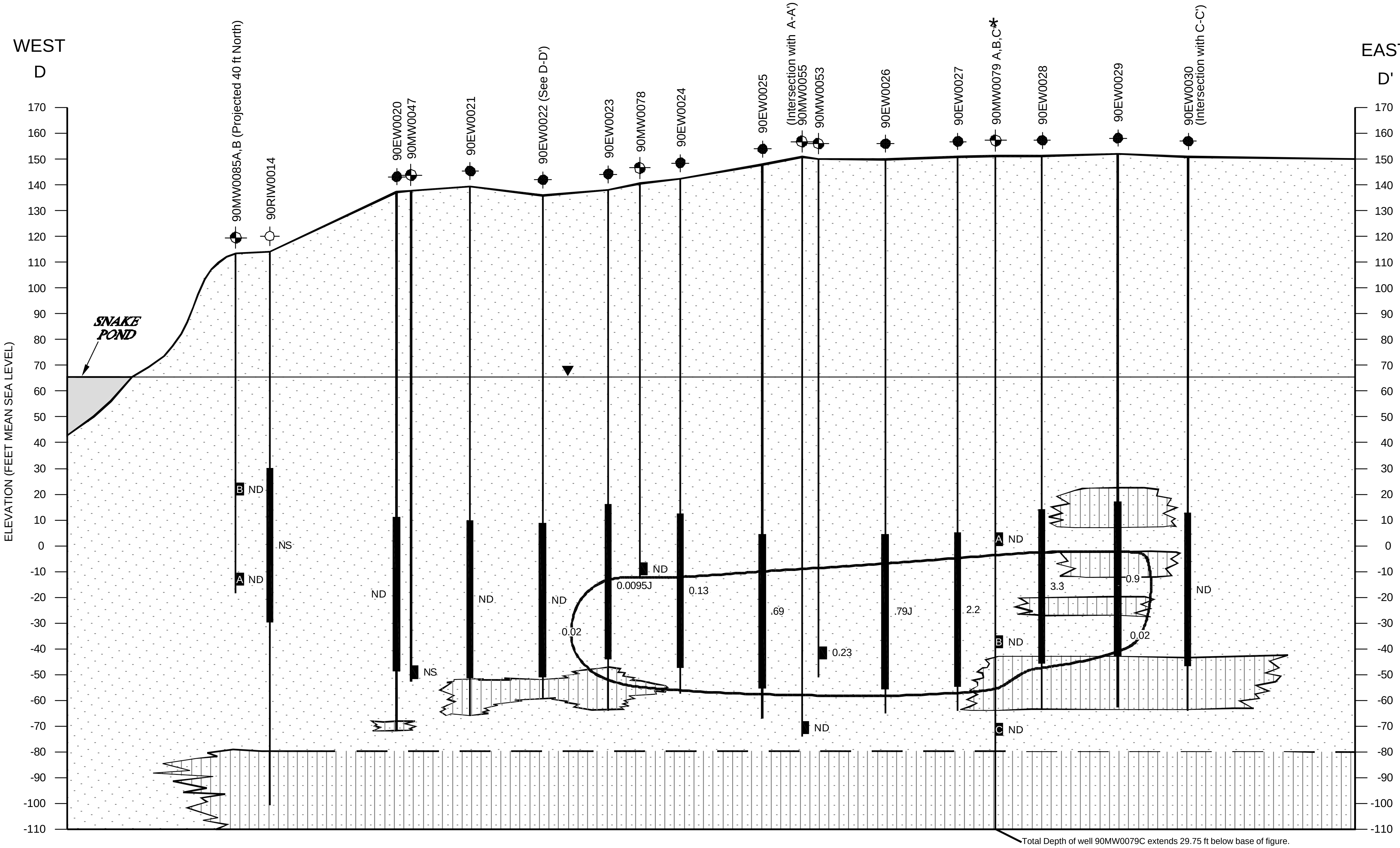
December 2000 SPEIM
Cross-Section C-C' at FS-12

Massachusetts Military Reservation
Cape Cod, Massachusetts

05/15/01 WR FS12-An00-Sp-14.dwg

Figure 5-24

last modified: 05/15/01 printed: 12/24/01 by Wr L:\4-REPORTS \FS-12\FS12-An00-Sp \CAD\FS12-An00-Sp-14.dwg




Data Source (1 October 2000 - 31 December 2000): AFCEE, 29 January 2001, MMR-AFCEE Data Warehouse; data source for previous quarters outlined in quarterly reports.

## Legend

| | |
|---|---|
| | Monitoring Well |
| | Extraction Well |
| | Reinjection Well |
| 0.02 | EDB Isoconcentration Contour (µg/L) (December 2000) |
| 0.13 | EDB Concentration in µg/L |
| A | Well Screen |
| ND | Nondetect |
| NS | Not Sampled |
| J | Estimated Concentration |
| ▼ | Water Table |
| | Sand |
| | Silty Sand |

NOTE: Stratigraphy is based on the preconstruction investigation (groundwater screening) by Jacobs in 1996 -97 (AFCEE 1997). Stratigraphy are dashed where inferred.

Sampling results presented represent the most recent groundwater sampling event in 2000.

*Monitoring wells 90MW0079A,B,C are situated south of extraction fence and represent clean water beyond capture zone of extraction wells.

[EDB 0.02 µg/L isocontour inferred from data collected north of D-D']

V: 40
H: 200
0
Scale in Feet

JACOBS ENGINEERING

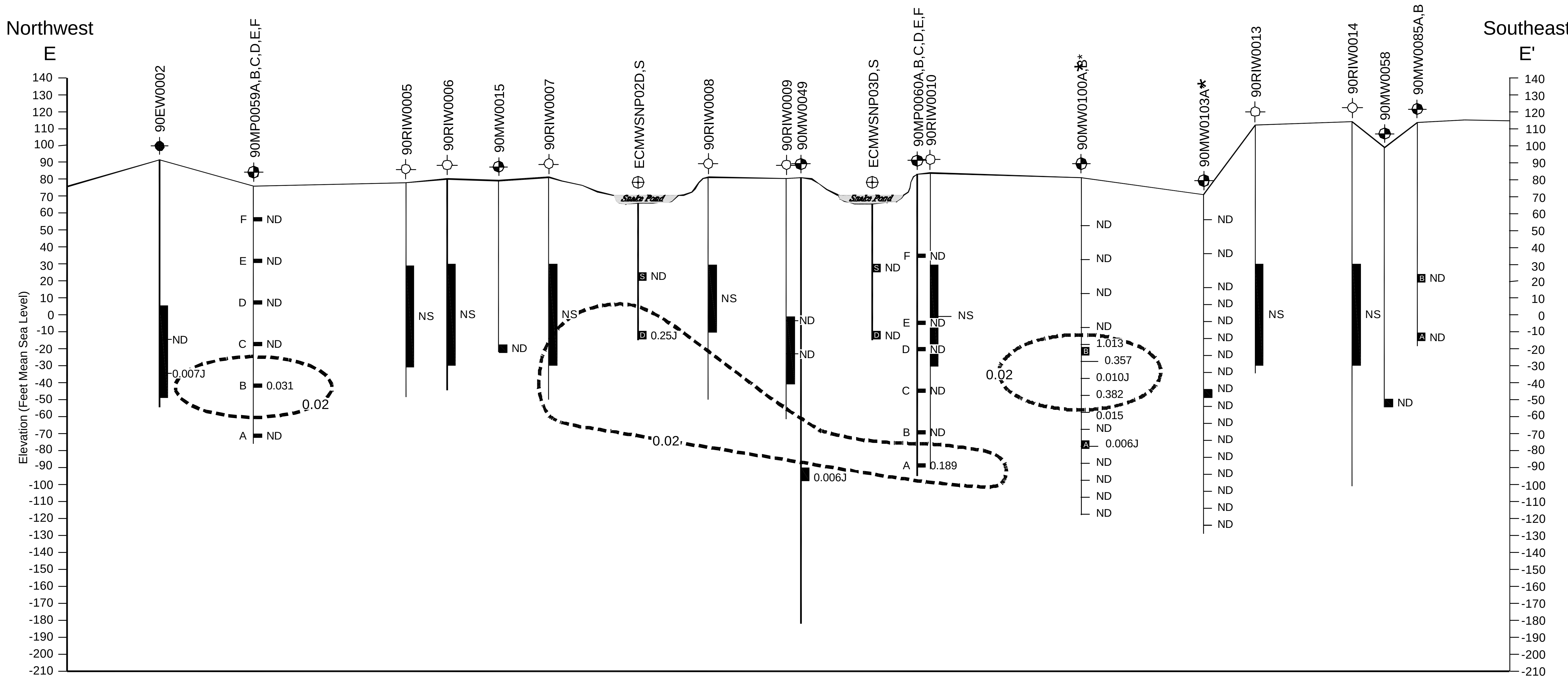
December 2000 SPEIM
Cross-Section D-D' at FS-12

Massachusetts Military Reservation
Cape Cod, Massachusetts

05/15/01 WR FS12-An00-Sp-15.dwg

Figure 5-25

L:\4-REPORTS \FS-12\FS12-An00-Sp \CAD\FS12-An00-Sp-15.dwg last modified: 05/15/01 printed: 12/24/01 by Wr




## Legend

Monitoring Well
Extraction Well
ND Nondetect
0.3 EDB Concentration in µg/L
Reinjection Well
Well Screen ID
NS Not Sampled
* Analytical data from 2000 groundwater screening
Microwell
Inferred EDB Isoconcentration Contour (EDB MCL - 0.02 µg/L)
J Estimated Concentration

Data Source (1 October 2000 - 31 December 2000): AFCEE, 29 January 2001, MMR-AFCEE Data Warehouse; data source for previous quarters outlined in quarterly reports.

V: 60
H: 250
Scale in Feet

JACOBS ENGINEERING

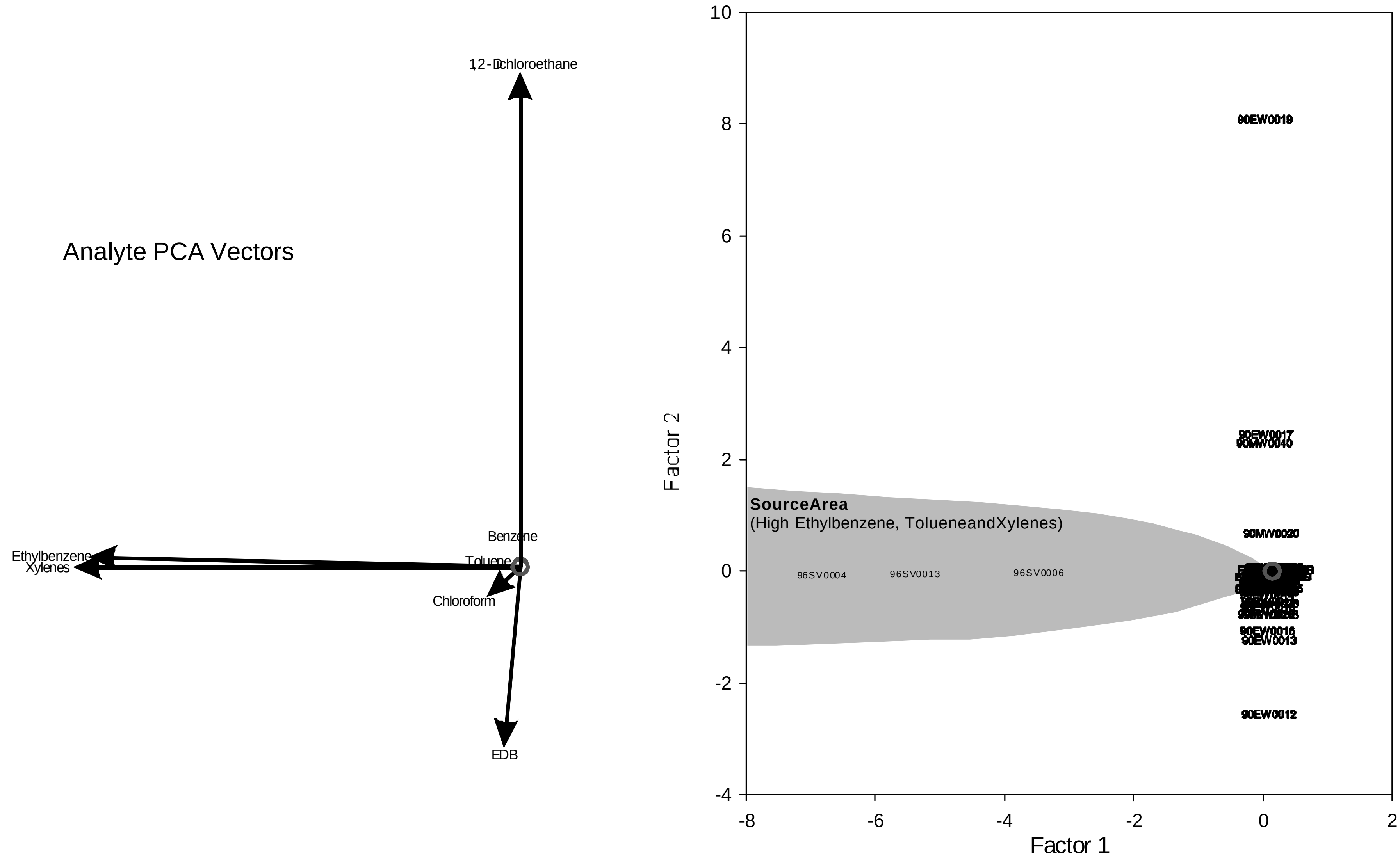
December 2000 SPEIM
Cross-Section E-E' at FS-12

Massachusetts Military Reservation
Cape Cod, Massachusetts

12/24/01 WR FS12-An00-Sp-16.dwg

Figure 5-26

L:\4-REPORTS \FS-12\FS12-An00-Sp \CAD\FS12-An00-Sp-16.dwg last modified: 12/24/01 printed: 12/26/01 by Wr




## Legend

Data Centroid

Analyte Vectors

90EW0012 Well Coordinate

PCA Principal ComponentsAnalysis

DataSource: AFCEE,08February2001,MMR-AFCEEDataWarehouse

JACOBSENGINEERING

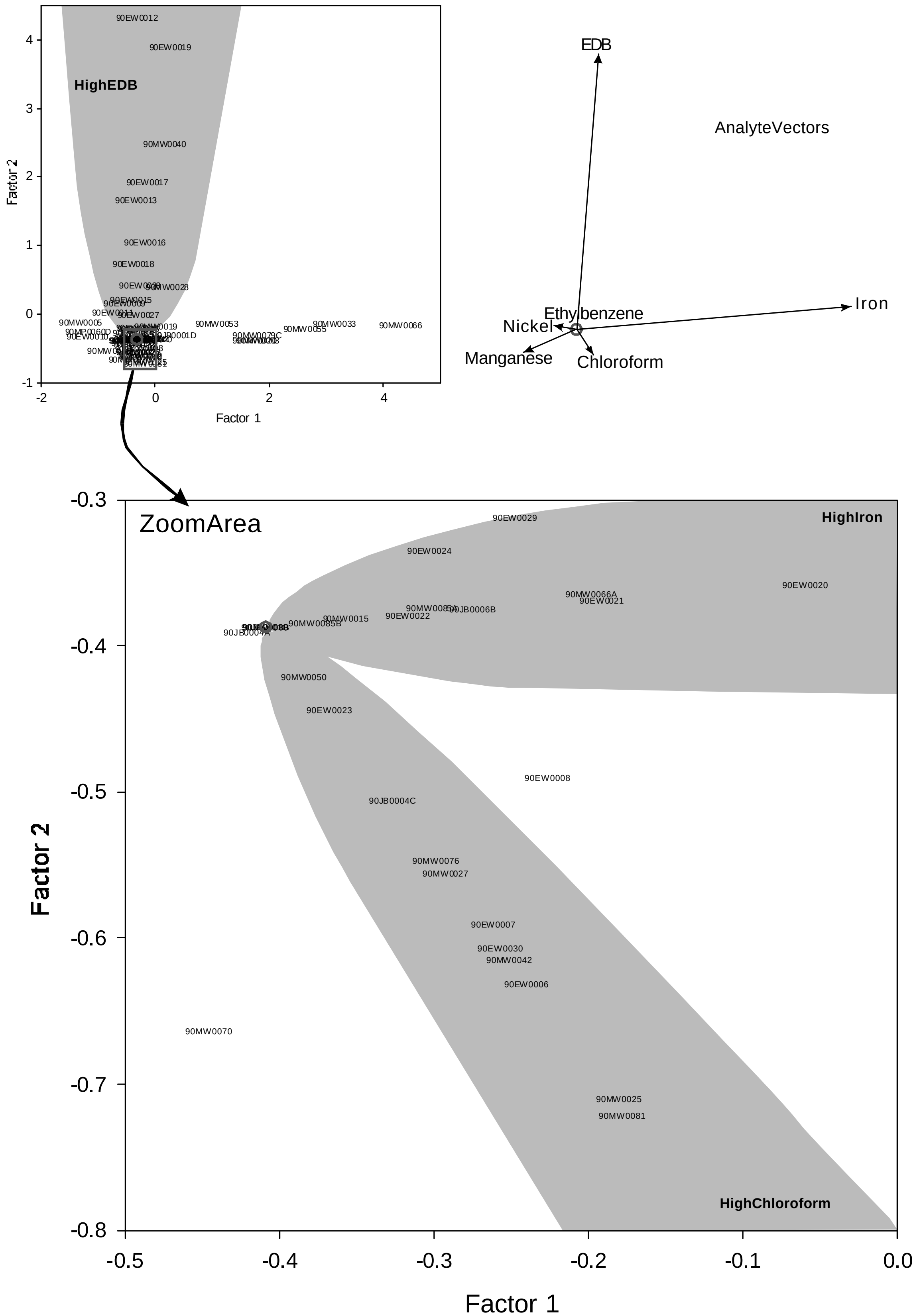
## Principal ComponentsAnalysis of FS-12 Organic Contaminants

MassachusettsMilitaryReservation
CapeCod,Massachusetts

03/21/01 SCFS12-An00-Sp_12.cdr

Figure 5-27

L:\04Reports\FS-12\FS12-An00-Sp\Corel\FS12-An00-Sp_12.cdr




Legend

DataCentroid
AnalyteVectors
90EW0012 WellCoordinate

DataSource: AFCEE, 08 February 2001, MMR-AFCEE Data Warehouse

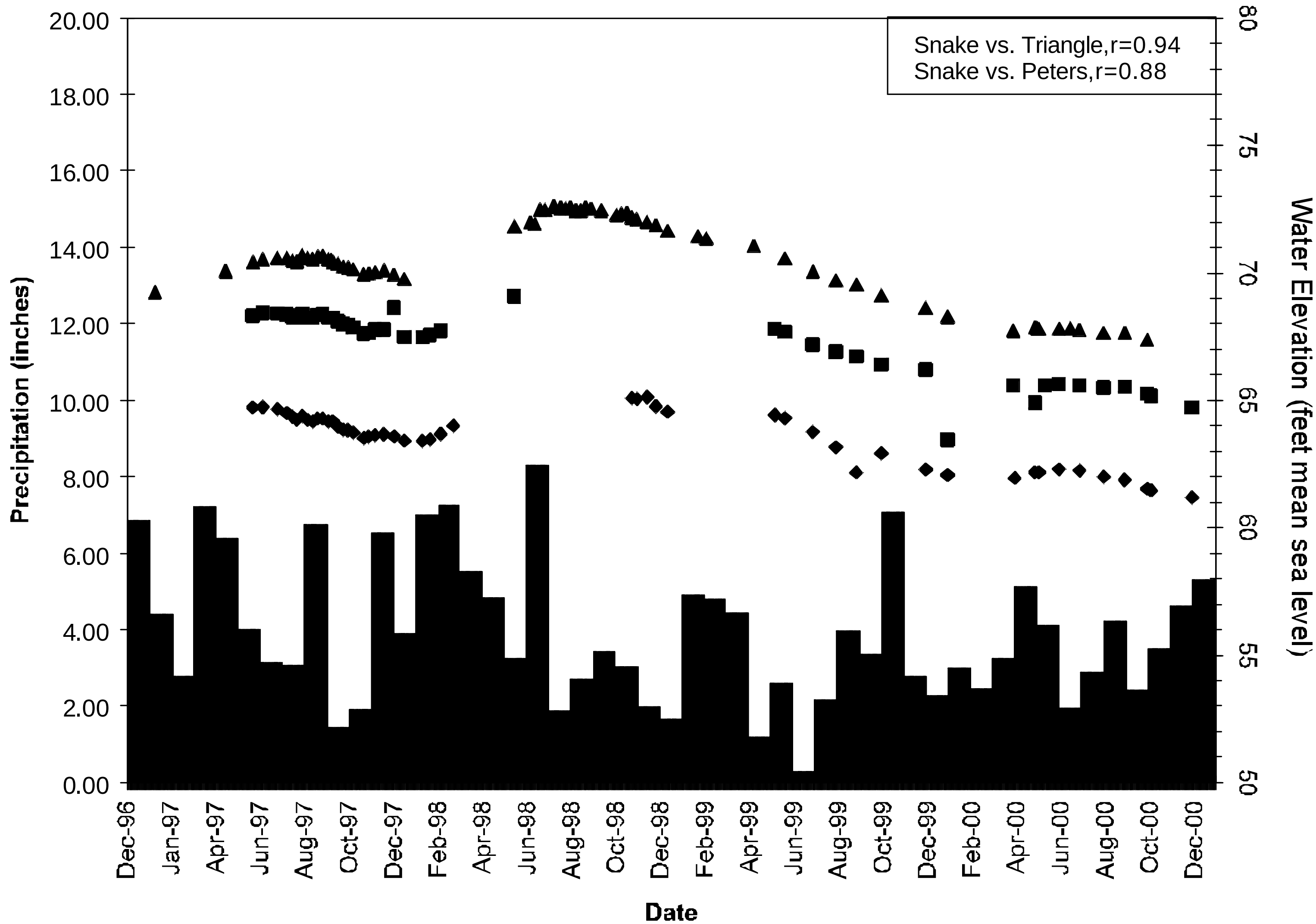
JACOBS ENGINEERING

Principal Components Analysis of Selected FS-12 Organic Contaminants and Metals

Massachusetts Military Reservation
Cape Cod, Massachusetts

03/22/01 SCFS12-An00-Sp_16.cdr

Figure 5-28




Legend

Precipitation

Triangle Pond

Snake Pond

Peters Pond

r = Correlation Coefficient for Water Level Comparison

DataSources:
JacobsEngineeringGroup Inc.,16February2001,
SiteEnvironmentalEvaluation(SEE)Databaseand
OtisANGB102ndOperations -Weather(1996-2000).

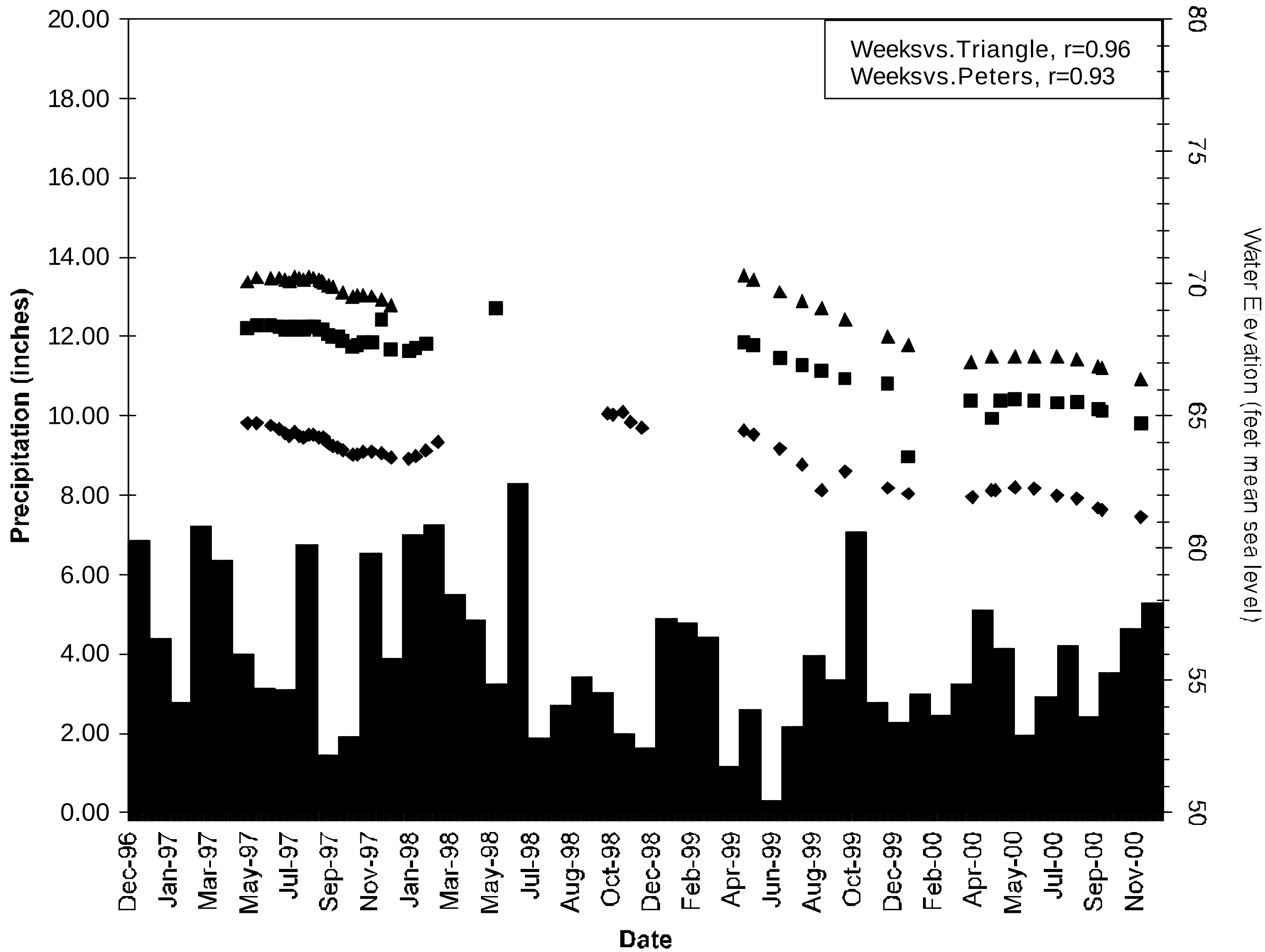
JACOBSENGINEERING

Precipitation and Water Levels at Snake, Peters and Triangle Ponds

MassachusettsMilitaryReservation
CapeCod,Massachusetts

3/22/01scFS12-An00-Sp_02.cdr

Figure 5-29




Legend

Precipitation

Triangle Pond

Weeks Pond

Peters Pond

R = Correlation Coefficientfor
Water Level Comparison

DataSources:
JacobsEngineeringGroup Inc.,16February2001,
SiteEnvironmentalEvaluation(SEE)Databaseand
OtisANGB102ndOperations -Weather(1996-2000).

JACOBSENGINEERING

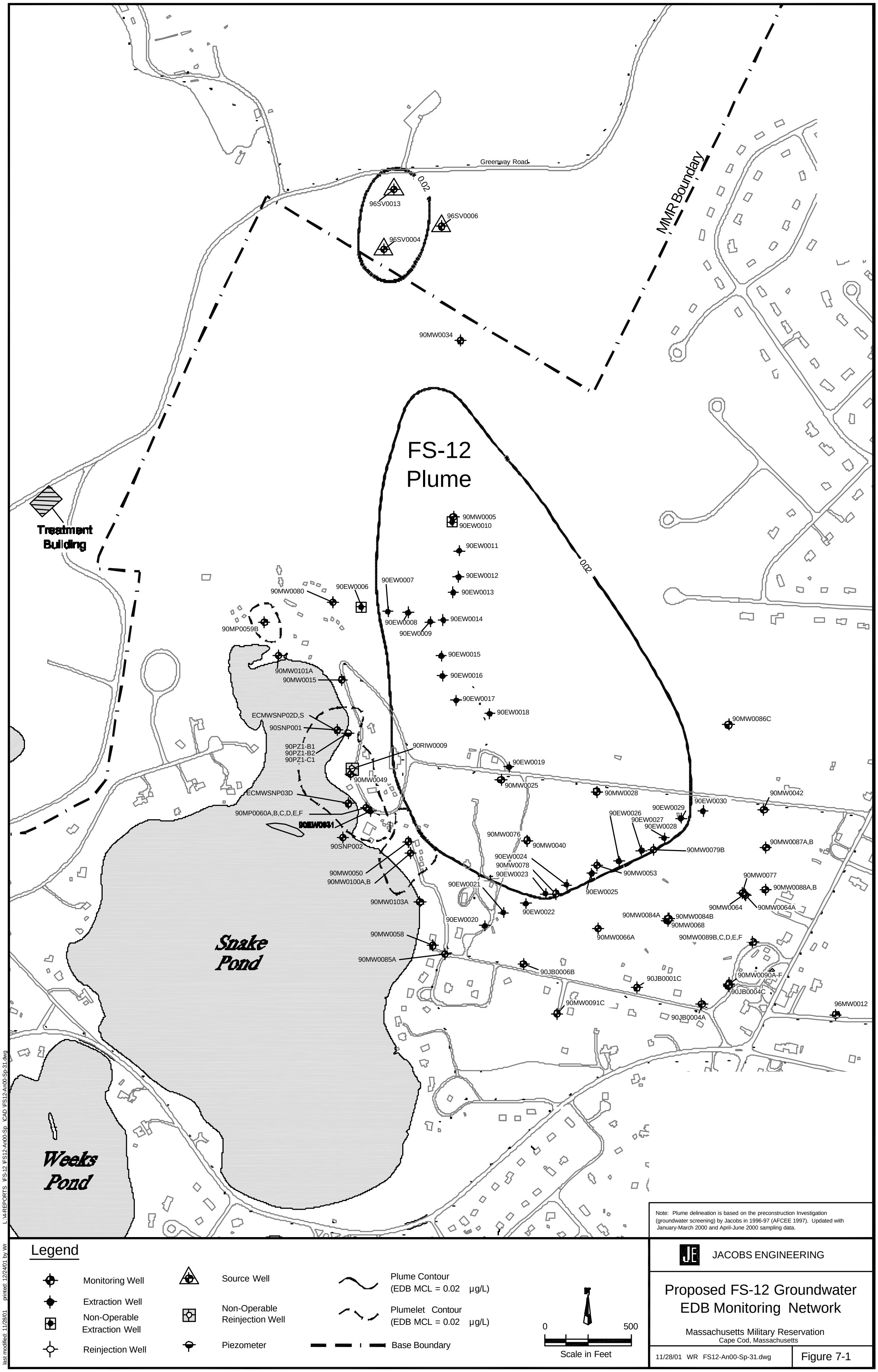
Precipitation and Water Levels at Weeks, Peters and Triangle Ponds

MassachusettsMilitaryReservation
CapeCod,Massachusetts

3/22/01scFS12-An00-Sp_01.cdr

Figure 5-30

L:\4Reports\Fs-12\FS12-An00-Sp\Corel\FS12-An00-Sp_01



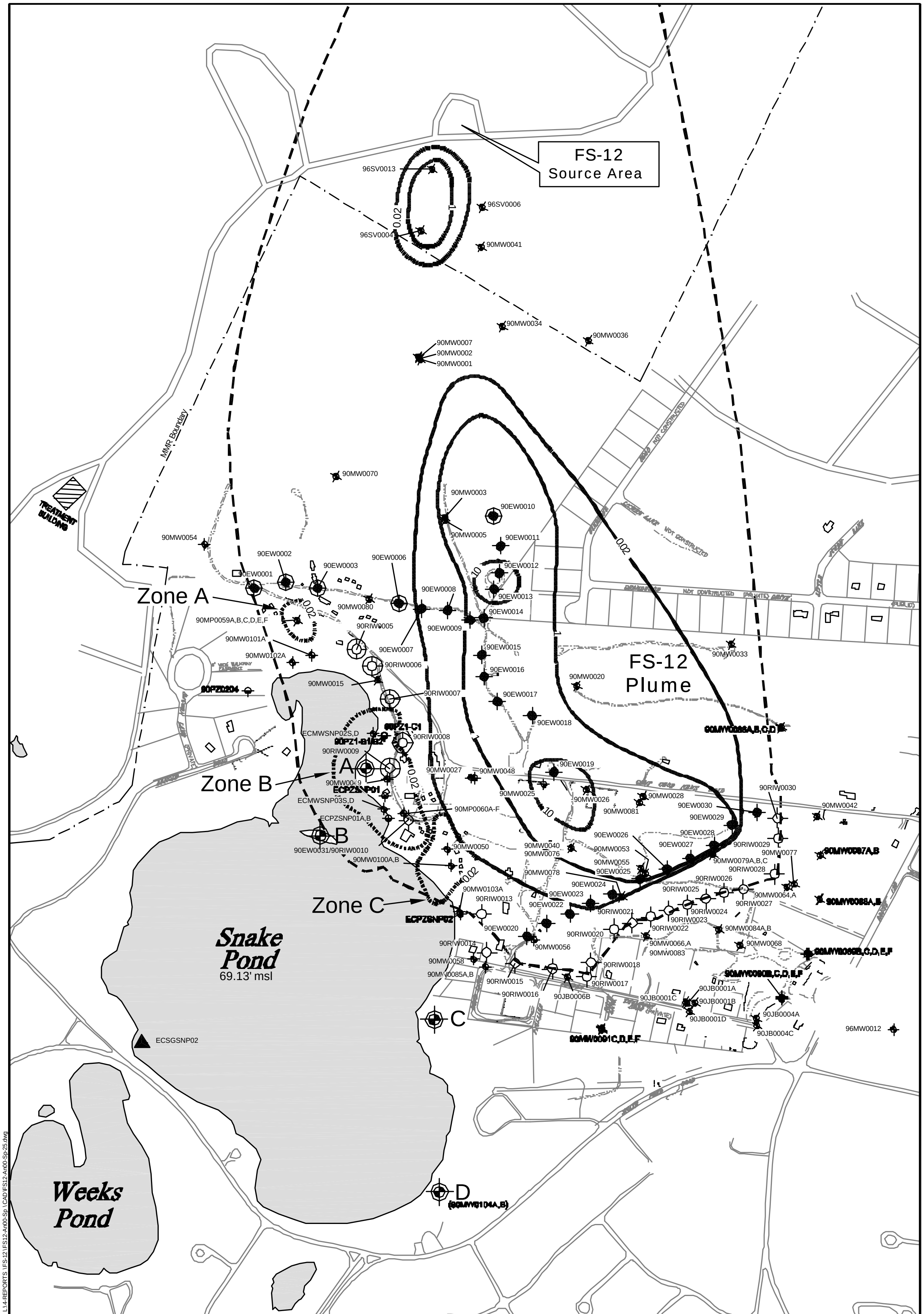

JACOBS ENGINEERING

Proposed FS-12 Groundwater EDB Monitoring Network

Massachusetts Military Reservation
Cape Cod, Massachusetts

11/28/01 WR FS12-An00-Sp-31.dwg

Figure 7-1




last modified: 11/16/01 printed: 12/24/01 by Wr L:\4-REPORTS\FS-12\FS12-An00-Sp\CAD\FS12-An00-Sp-25.dwg

Legend

- Staff Gauge
- Reinjection Well (operable)
- Reinjection Well (non-operable)
- D Proposed Monitoring Well
- Extraction Well (operable)
- Extraction Well (non-operable)
- Plume Contour (EDB MCL = 0.02 µg/L)
- Monitoring Well
- Piezometer
- Capture Zone

Plume contour from 2000 data.

0 500

Scale in Feet

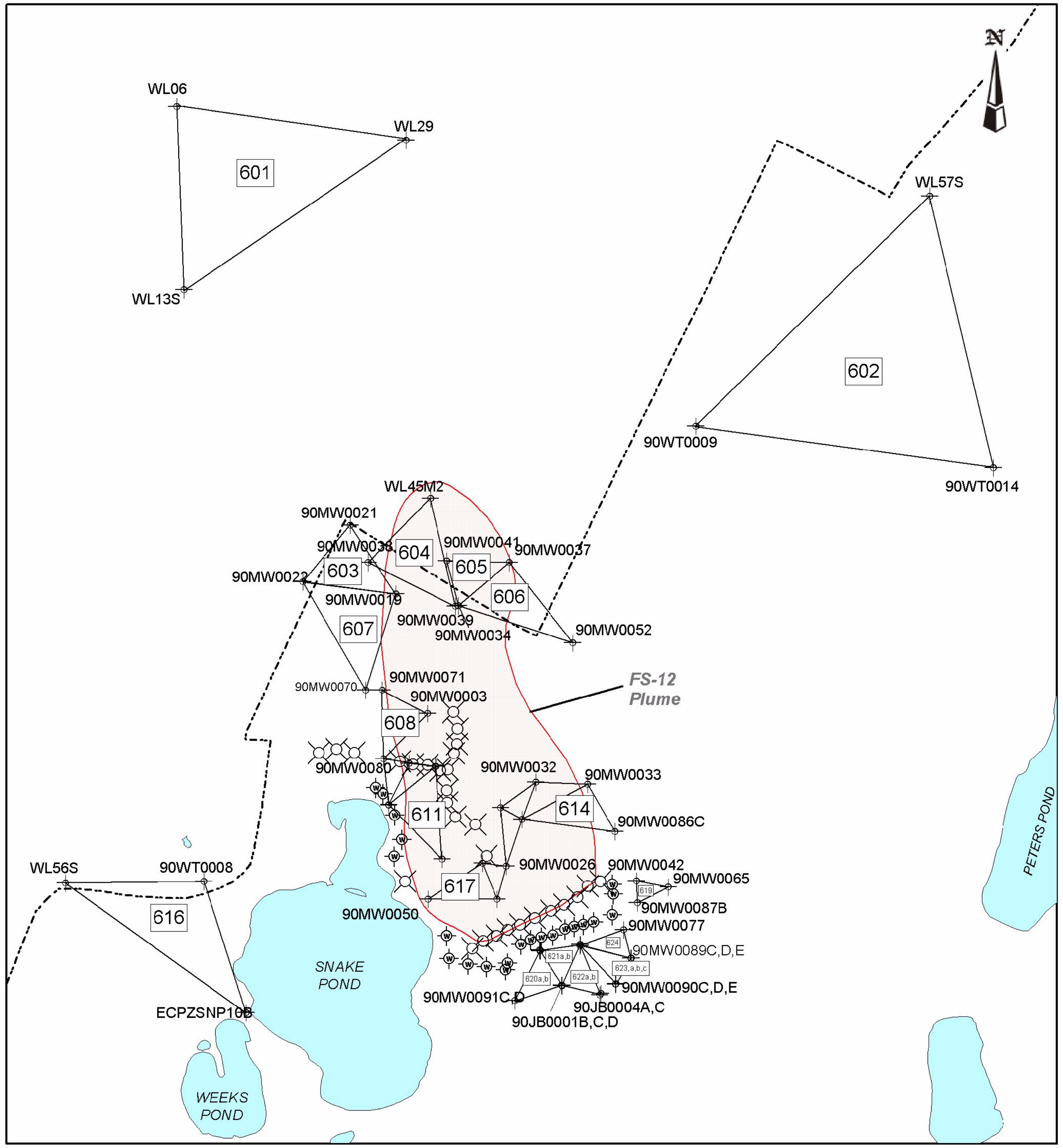
JE JACOBS ENGINEERING

FS-12
Monitoring Locations and
Capture Zone

Massachusetts Military Reservation
Cape Cod, Massachusetts

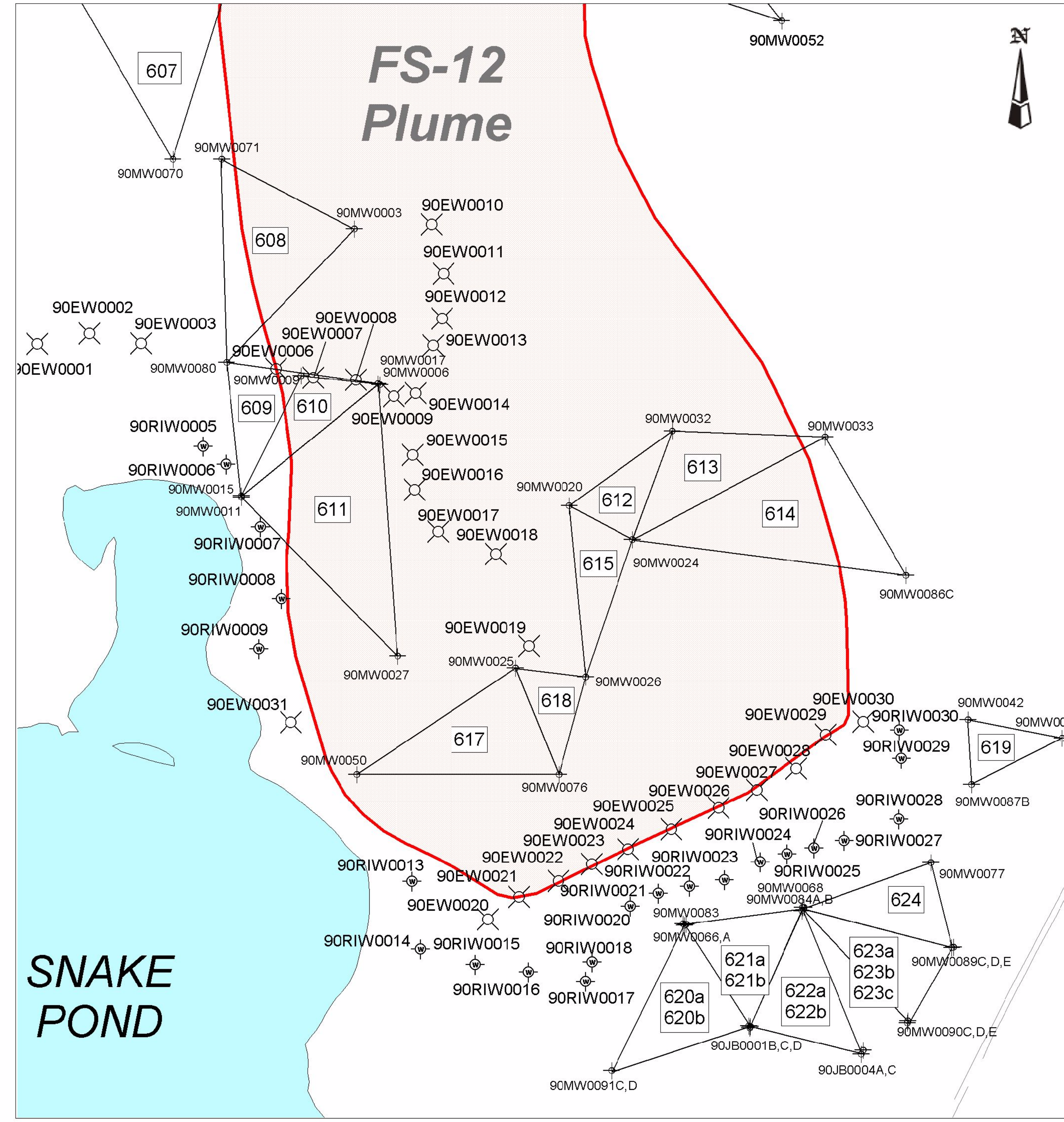
11/16/01 WR FS12-An00-Sp-25.dwg

Figure 7-2




Proposed FS-12 SPEIM Peripheral Well Network

400 0 400 Feet




Zoomed View of FS-12 Remedial System

400 0 400 Feet

Legend

MMR Boundary

90EW0020 Extraction Well

90RIW0014 Reinjection Well

90MW0091C Proposed Peripheral Network Well

Plume Contour for EDB MCL—Basis of Design (MCL = 0.02 µg/L)

618 Triangular Elements for Determining Hydraulic Gradients

JACOBS ENGINEERING

Proposed FS-12 SPEIM Peripheral Well Network and Zoomed View of FS-12 Remedial System

Massachusetts Military Reservation
Cape Cod, Massachusetts

9/18/01 NZ D:\GIS\PROJECTS\FS-12
fs12_peripheral.apr 11X17 FS12

Figure 7-3

# TABLES

**Table 3-1**
**FS-12 Groundwater Monitoring Network, January - December 2000**

| Identification | Easting (ft) | Northing (ft) | Screen Interval (ft msl) | Well Type (a) | Monitoring Rationale (b) | Rationale for Location | Frequency (c) | Parameters (d) | Classification |
|---|---|---|---|---|---|---|---|---|---|
| 90EW0001 | 867273 | 252420 | 5.06 to -55.67 | EW | CP | Monitor extraction well concentrations. | OT | VOC, EDB | NA |
| 90EW0002 | 867448 | 252455 | 5.58 to -54.42 | EW | CP | Monitor extraction well concentrations. | OT | VOC, EDB | NA |
| 90EW0003 | 867622 | 252423 | 3.25 to -57.15 | EW | CP | Monitor extraction well concentrations. | OT | VOC, EDB | NA |
| 90EW0006 | 868073 | 252338 | 5.89 to -54.81 | EW | CP | Monitor extraction well concentrations. | SA | VOC, EDB, TOC, TDS, TSS | NA |
| 90EW0007 | 868199 | 252308 | -0.73 to -61.18 | EW | CP | Monitor extraction well concentrations. | SA | VOC, EDB, TOC, TDS, TSS | NA |
| 90EW0008 | 868342 | 252301 | 6.02 to -55.48 | EW | CP | Monitor extraction well concentrations. | SA | VOC, EDB, TOC, TDS, TSS | NA |
| 90EW0009 | 868469 | 252247 | 6.25 to -53.75 | EW | CP | Monitor extraction well concentrations. | SA | VOC, EDB, TOC, TDS, TSS | NA |
| 90EW0010 | 868596 | 252822 | 23.84 to -36.16 | EW | CP | Monitor extraction well concentrations. | SA | VOC, EDB, TOC, TDS, TSS | NA |
| 90EW0011 | 868636 | 252656 | 15.41 to -44.59 | EW | CP | Monitor extraction well concentrations. | SA | VOC, EDB, TOC, TDS, TSS | NA |
| 90EW0012 | 868631 | 252506 | 15.1 to -44.9 | EW | CP | Monitor extraction well concentrations. | SA | VOC, EDB, TOC, TDS, TSS | NA |
| 90EW0013 | 868601 | 252416 | 9.02 to -51.8 | EW | CP | Monitor extraction well concentrations. | SA | VOC, EDB, TOC, TDS, TSS | NA |
| 90EW0014 | 868543 | 252256 | 4.41 to -55.59 | EW | CP | Monitor extraction well concentrations. | SA | VOC, EDB, TOC, TDS, TSS | NA |
| 90EW0015 | 868533 | 252050 | 5.41 to -55.34 | EW | CP | Monitor extraction well concentrations. | SA | VOC, EDB, TOC, TDS, TSS | NA |
| 90EW0016 | 868539 | 251933 | 6.13 to -57.57 | EW | CP | Monitor extraction well concentrations. | SA | VOC, EDB, TOC, TDS, TSS | NA |
| 90EW0017 | 868618 | 251793 | 5.21 to -34.79 | EW | CP | Monitor extraction well concentrations. | SA | VOC, EDB, TOC, TDS, TSS | NA |
| 90EW0018 | 868811 | 251717 | 8.08 to -52.78 | EW | CP | Monitor extraction well concentrations. | SA | VOC, EDB, TOC, TDS, TSS | NA |
| 90EW0019 | 868923 | 251409 | 2.93 to -62.07 | EW | CP | Monitor extraction well concentrations. | SA | VOC, EDB, TOC, TDS, TSS | NA |
| 90EW0020 | 868784 | 250494 | 11.22 to -48.78 | EW | CP | Monitor extraction well concentrations. | SA | VOC, EDB, TOC, TDS, TSS | NA |
| 90EW0021 | 868890 | 250569 | 10.02 to -51.56 | EW | CP | Monitor extraction well concentrations. | SA | VOC, EDB, TOC, TDS, TSS | NA |
| 90EW0022 | 869021 | 250621 | 8.91 to -51.09 | EW | CP | Monitor extraction well concentrations. | SA | VOC, EDB, TOC, TDS, TSS | NA |
| 90EW0023 | 869134 | 250679 | 16.08 to -43.92 | EW | CP | Monitor extraction well concentrations. | SA | VOC, EDB, TOC, TDS, TSS | NA |
| 90EW0024 | 869255 | 250729 | 12.67 to -47.33 | EW | CP | Monitor extraction well concentrations. | SA | VOC, EDB, TOC, TDS, TSS | NA |
| 90EW0025 | 869400 | 250795 | 4.6 to -55.4 | EW | CP | Monitor extraction well concentrations. | SA | VOC, EDB, TOC, TDS, TSS | NA |
| 90EW0026 | 869558 | 250866 | 4.42 to -55.58 | EW | CP | Monitor extraction well concentrations. | SA | VOC, EDB, TOC, TDS, TSS | NA |
| 90EW0027 | 869687 | 250927 | 5.28 to -54.72 | EW | CP | Monitor extraction well concentrations. | SA | VOC, EDB, TOC, TDS, TSS | NA |
| 90EW0028 | 869819 | 250999 | 14.23 to -45.77 | EW | CP | Monitor extraction well concentrations. | SA | VOC, EDB, TOC, TDS, TSS | NA |
| 90EW0029 | 869916 | 251113 | 17.14 to -42.86 | EW | CP | Monitor extraction well concentrations. | SA | VOC, EDB, TOC, TDS, TSS | NA |
| 90EW0030 | 870043 | 251155 | 12.9 to -47.1 | EW | CP | Monitor extraction well concentrations. | SA | VOC, EDB, TOC, TDS, TSS | NA |
| 90JB0001B | 869662 | 250131 | 37.55 to 32.55 | FM | CP | Plume definition in the vicinity of the JBT plume. | A<br>Q | VOC, metals<br>EDB | Downgradient |
| 90JB0001C | 869663 | 250136 | -7.33 to -12.33 | FM | CP, HH | Plume definition in the vicinity of the JBT plume. | A<br>Q<br>Q | VOC, metals<br>EDB<br>WL | Downgradient |
| 90JB0001D | 869658 | 250137 | -32.43 to -37.43 | FM | CP | Plume definition in the vicinity of the JBT plume. | A<br>Q | VOC, metals<br>EDB | Downgradient |
| 90JB0004A | 870036 | 250042 | 4.00 to -1.00 | FM, SD | HH, CP | Plume definition in the vicinity of the JBT plume. | A<br>Q<br>Q | VOC, metals<br>EDB<br>WL | Downgradient |
| 90JB0004C | 870042 | 250055 | 35.84 to 30.84 | FM, SD | CP | Plume definition in the vicinity of the JBT plume. | A<br>Q | VOC, metals<br>EDB | Downgradient |
| 90JB0006B | 869006 | 250272 | -27.22 to -32.22 | SU, SD | HH, CR | Breakthrough/reinjection monitoring near southern reinjection well fence. | A<br>Q<br>Q | VOC<br>EDB, metals, TSS<br>WL | Downgradient |
| 90MP0059A | 867512 | 252243 | -69.99 to -72.49 | SU | CP | Delineation of the plumelet. | OT | EDB | Upgradient |
| 90MP0059B | 867512 | 252243 | -40.49 to -42.99 | SU | CP | Delineation of the plumelet. | OT | EDB | Upgradient |

## Table 3-1
## FS-12 Groundwater Monitoring Network, January - December 2000

| Identification | Easting (ft) | Northing (ft) | Screen Interval (ft msl) | Well Type (a) | Monitoring Rationale (b) | Rationale for Location | Frequency (c) | Parameters (d) | Classification |
|---|---|---|---|---|---|---|---|---|---|
| 90MP0059C | 867512 | 252243 | -15.99 to -18.49 | SU | CP | Delineation of the plumelet. | OT | EDB | Upgradient |
| 90MP0059D* | 867512 | 252243 | 8.5 to 6.01 | SU | HV, HH | Horizontal groundwater flow and vertical gradient monitoring near Snake Pond. | Q | WL | Upgradient |
| | | | | | DI | Monitor ambient upgradient groundwater quality, Snake Pond (study area). | M | P | |
| | | | | | | | SA | WL | |
| 90MP0059E | 867512 | 252243 | 33.01 to 30.51 | SU | CP | Delineation of the plumelet. | OT | EDB | Upgradient |
| 90MP0059F | 867512 | 252243 | 57.51 to 55.01 | SU | CP | Delineation of the plumelet. | OT | EDB | Upgradient |
| 90MP0060A | 868100 | 251175 | -87.25 to -89.75 | FM/MP/P | CP | Delineation of the plumelet. | OT | EDB | Downgradient |
| 90MP0060B | 868100 | 251175 | -67.75 to -70.25 | FM/MP/P | CP | Delineation of the plumelet. | Q | EDB | Downgradient |
| 90MP0060C | 868100 | 251175 | -43.2 to -45.75 | FM/MP/P | EC | Monitor water quality entering Snake Pond downgradient of ETR (study area). | A | C | Downgradient |
| | | | | | | | SA | P | |
| 90MP0060D | 868100 | 251175 | -18.7 to -21.25 | FM/MP/P | HH, HV, CP | Plume definition monitoring near Snake Pond. | Q | VOC, EDB, metals | Downgradient |
| | | | | | | | | WL | |
| | | | | | EC | Monitor water quality entering Snake Pond downgradient of ETR (study area). | A | C | |
| | | | | | | | SA | P | |
| 90MP0060E | 868100 | 251175 | -3.25 to -5.75 | FM/MP/P | CP | Plume definition monitoring near Snake Pond. | OT | EDB | Downgradient |
| 90MP0060F | 868100 | 251175 | 36.2 to 33.75 | FM/MP/P | EC | Monitor water quality entering Snake Pond downgradient of ETR (study area). | A | C | Downgradient |
| | | | | | | | SA | P | |
| 90MW0001 | 868194 | 253687 | 25.70 to 20.70 | SU | CS | Source area monitoring of FS-12 plume. | SA | VOC, EDB | Upgradient |
| 90MW0002 | 868186 | 253695 | 71.40 to 61.40 | SU | CS | Source area monitoring of FS-12 plume. | SA | VOC, EDB | Upgradient |
| 90MW0003 | 868335 | 252806 | 12.90 to 7.90 | SU, SD | HH, CP | Plume definition in the core of the plume. | A | metals | Upgradient |
| | | | | | | | Q | VOC, EDB | |
| | | | | | | | Q | WL | |
| 90MW0005 | 868333 | 252810 | -27.5 to -32.5 | SU, SD | HH, CP | Plume definition, and flow in the core of the plume. | A | metals | Upgradient |
| | | | | | | | Q | VOC, EDB | |
| | | | | | | | Q | WL | |
| 90MW0007 | 868182 | 253701 | -21.80 to -26.80 | SU | HH | Groundwater flow in the north-central portion of the plume. | Q | WL | Upgradient |
| | | | | | CS | Source area monitoring of FS-12 plume. | SA | VOC, EDB | |
| 90MW0009 | 868157 | 252314 | 12.40 to 7.40 | | CP | Plume definition along the west side of the plume | A | EDB | Upgradient |
| 90MW0010 | 867959 | 251902 | 62.70 to 57.70 | FM | HV | Vertical gradients on the north side of Snake Pond. | Q | WL | Downgradient |
| | | | | | EC | Monitoring downgradient of treatment system. | SA | WL | |
| 90MW0011 | 867958 | 251907 | 32.70 to 27.70 | FM | HV | Vertical gradients on the north side of Snake Pond. | Q | WL | Downgradient |
| | | | | | EC | Monitoring downgradient of treatment system. | SA | WL | |
| 90MW0015 | 867957 | 251913 | -17.19 to -22.19 | FM, SD | CP, HH, HV | Plume definition in the central portion of the plume. Vertical gradients and groundwater flow on the north side of Snake Pond. | Q | VOC, EDB, metals | Downgradient |
| | | | | | | | | WL | |
| | | | | | EC | Monitor water quality entering Snake Pond downgradient of ETR (study area). | SA | P | |
| | | | | | | | | WL | |
| 90MW0017 | 868414 | 252288 | -6.80 to -11.80 | SU | HH | Groundwater flow in the north-central portion of the plume. | Q | WL | Upgradient |

## Table 3-1
## FS-12 Groundwater Monitoring Network, January - December 2000

| Identification | Easting (ft) | Northing (ft) | Screen Interval (ft msl) | Well Type (a) | Monitoring Rationale (b) | Rationale for Location | Frequency (c) | Parameters (d) | Classification |
|---|---|---|---|---|---|---|---|---|---|
| 90MW0019 | 868025 | 253982 | -6.70 to -11.70 | SU | HH | Groundwater flow in the northern portion of the plume. | Q | WL | Upgradient |
| 90MW0020 | 869058 | 251879 | -8.5 to -13.5 | FM, SD | HH, CP | Plume definition in the central portion of the plume. | Q | VOC, EDB, metals | Upgradient |
| | | | | | | | | WL | |
| | | | | | DI | Monitor in-plume groundwater quality, Snake Pond (study area). | M | P | |
| | | | | | | | SA | WL | |
| 90MW0021 | 867577 | 254657 | -6.30 to -11.30 | SU | HH | Groundwater flow in the northwestern portion of the plume. | Q | WL | Upgradient |
| 90MW0024 | 869268 | 251765 | -10.27 to -15.27 | SU | HH | Groundwater flow monitoring along the east-central edge of the plume. | Q | WL | Upgradient |
| 90MW0025 | 868877 | 251335 | -8.50 to -13.50 | FM | HH, CP | Plume definition along the southern core of the plume. | A | metals | Upgradient |
| | | | | | | | Q | VOC, EDB | |
| | | | | | | | Q | WL | |
| 90MW0026 | 869111 | 251306 | -8.31 to -13.31 | FM | HH | Groundwater flow along the southern core of the plume. | Q | WL | Upgradient |
| 90MW0027 | 868480 | 251376 | -26.73 to -31.73 | FM | HH, HV, CP | Plume definition in the northeast portion of the plume. | A | metals | Upgradient |
| | | | | | | | Q | VOC, EDB | |
| | | | | | | | Q | WL | |
| 90MW0028 | 869430 | 251263 | -31.64 to -36.64 | FM, SD | HH, CP | Plume definition along the southeast portion of the plume. | A | metals | Upgradient |
| | | | | | | | Q | VOC, EDB | |
| | | | | | | | Q | WL | |
| 90MW0032 | 869402 | 252130 | -3.93 to -8.82 | SU | HH | Groundwater flow along the east-central edge of the plume. | Q | WL | Upgradient |
| 90MW0033 | 869914 | 252110 | -2.63 to -7.59 | SU, SD | HH, CP | Plume definition along the eastern side of the plume. | A | VOC, metals | Upgradient |
| | | | | | | | Q | EDB | |
| | | | | | | | Q | WL | |
| 90MW0034 | 868645 | 253868 | 37.30 to 32.51 | SU | CS | Source area monitoring of FS-12 plume. | SA | VOC, EDB | Upgradient |
| 90MW0036 | 869121 | 253790 | 19.39 to 14.49 | SU | HH, CP | Plume definition in the northeast portion of the plume. | Q | VOC, EDB | Upgradient |
| | | | | | | | | WL | |
| 90MW0040 | 869029 | 250985 | -39.94 to -44.85 | FM, SD | HH, CP | Plume definition at the southern edge of the core of the plume. | A | metals | Upgradient |
| | | | | | | | Q | VOC, EDB | |
| | | | | | | | Q | WL | |
| 90MW0041 | 868529 | 254309 | 34.20 to 29.37 | SU | CS | Source area monitoring of FS-12 plume. | SA | VOC, EDB | Upgradient |
| 90MW0042 | 870394 | 251163 | 0.95 to -3.95 | FM, SD | HH, CP | Plume definition in the southeastern edge of the plume. | A | VOC | Downgradient |
| | | | | | | | SA | metals | |
| | | | | | | | Q | EDB | |
| | | | | | | | Q | WL | |
| 90MW0047 | 868811 | 250486 | -46.50 to -51.50 | FM | HH, HV | Groundwater flow along the southern toe of the plume. Vertical gradient monitoring. | Q | WL | Upgradient |
| 90MW0048 | 868493 | 251371 | 11.79 to 6.89 | FM | HV | Vertical gradients northeast of Snake Pond. | Q | WL | Upgradient |
| 90MW0049 | 868008 | 251365 | -93.14 to -98.14 | FM | HH | Plume definition of the plumelet. | Q | EDB | Downgradient |
| | | | | | | Groundwater flow on the northern edge of Snake Pond. | Q | WL | |
| | | | | | EC | Monitoring crossgradient of treatment system. | SA | WL | |

## Table 3-1
## FS-12 Groundwater Monitoring Network, January - December 2000

| Identification | Easting (ft) | Northing (ft) | Screen Interval (ft msl) | Well Type (a) | Monitoring Rationale (b) | Rationale for Location | Frequency (c) | Parameters (d) | Classification |
|---|---|---|---|---|---|---|---|---|---|
| 90MW0050 | 868344 | 250979 | -2.77 to -7.57 | FM, SD | HH, CP | Plume definition southwest of the plume and northeast of Snake Pond. | SA<br>Q<br>Q | metals<br>VOC, EDB<br>WL | Upgradient |
| 90MW0053 | 869431 | 250841 | -39.09 to -44.09 | FM, SD | HH, HV, CP | Plume definition along the southern extraction well fence. | SA<br>Q<br>Q | metals<br>VOC, EDB<br>WL | Upgradient |
| 90MW0054 | 867000 | 252663 | -23.24 to -28.24 | FM | HH | Groundwater flow west of the plume and north of Snake Pond. | Q | WL | Upgradient |
| 90MW0055 | 869418 | 250870 | -68.15 to -73.15 | FM | HH, HV, CP | Plume extent monitoring under the southern extraction well fence. | SA<br>Q<br>Q | metals<br>VOC, EDB<br>WL | Upgradient |
| 90MW0056 | 868821 | 250477 | -74.93 to -79.93 | SU, SD | HV, CP | Plume extent monitoring under the southern extraction well fence. | A<br>SA<br>Q<br>Q | VOC<br>metals<br>EDB<br>WL | Upgradient |
| 90MW0058 | 868487 | 250369 | -49.20 to -54.20 | FM | EC | Monitoring crossgradient of treatment system. | OT<br>SA | EDB<br>WL | Downgradient |
| 90MW0064 | 870280 | 250674 | -61.45 to -66.45 | FM | CBR | Breakthrough monitoring on the southeast edge of the plume. | A<br>Q | VOC<br>EDB | Downgradient |
| 90MW0064A | 870287 | 250668 | 38.14 to 33.14 | FM | CBR | Breakthrough monitoring on the southeast edge of the plume. | A<br>Q | VOC<br>EDB | Downgradient |
| 90MW0066 | 869438 | 250479 | -56.14 to -61.14 | FM | HV, CBR | Breakthrough/reinjection monitoring along the southern reinjection well fence. | A<br>Q<br>Q | VOC<br>EDB, metals, TSS<br>WL | Downgradient |
| 90MW0066A | 869444 | 250473 | -7.59 to -12.59 | FM | HH, HV, CR | Breakthrough/reinjection monitoring along the southern reinjection well fence. | A<br>Q<br>Q | VOC<br>EDB, metals, TSS<br>WL | Downgradient |
| 90MW0068 | 869837 | 250522 | 0.40 to -4.60 | FM | HH, CBR | Breakthrough/reinjection monitoring along the southeast edge of the plume. | A<br>Q<br>Q | VOC<br>EDB<br>WL | Downgradient |
| 90MW0070 | 867727 | 253039 | -7.39 to -12.39 | FM | HH, CP | Plume definition and extent along the west-central edge of the plume. | A<br>SA<br>Q<br>Q | VOC<br>metals<br>EDB<br>WL | Upgradient |
| | | | | | DI | Monitor ambient upgradient groundwater quality, Snake Pond (study area). | M<br>SA | P<br>WL | |
| 90MW0076 | 869021 | 250980 | -6.97 to -12.97 | FM | CP | Plume definition along the central axis. | A<br>SA<br>Q | VOC<br>metals<br>EDB | Upgradient |
| 90MW0077 | 870269 | 250683 | -3.61 to -8.61 | FM | HH, CBR | Breakthrough monitoring along the southeast edge of the plume. | A<br>Q<br>Q | VOC<br>EDB<br>WL | Downgradient |
| 90MW0078 | 869196 | 250678 | -6.43 to -11.43 | FM | CBR | Breakthrough monitoring along the southern edge of the plume. | Q | VOC, EDB | Upgradient |
| 90MW0079A | 869755 | 250937 | 5.25 to 0.25 | FM | CBR | Breakthrough monitoring along the southern extraction well fence. | A<br>Q | VOC<br>EDB | Upgradient |

## Table 3-1
## FS-12 Groundwater Monitoring Network, January - December 2000

| Identification | Easting (ft) | Northing (ft) | Screen Interval (ft msl) | Well Type (a) | Monitoring Rationale (b) | Rationale for Location | Frequency (c) | Parameters (d) | Classification |
|---|---|---|---|---|---|---|---|---|---|
| 90MW0079B | 869759 | 250932 | -34.79 to -39.79 | FM | CBR | Breakthrough monitoring along the southern extraction well fence. | A<br>Q | VOC<br>EDB | Upgradient |
| 90MW0079C | 869762 | 250920 | -68.80 to -73.80 | FM | CP | Plume extent monitoring under the southern extraction well fence. | SA<br>Q | metals<br>VOC, EDB | Upgradient |
| 90MW0080 | 867908 | 252360 | -19.91 to -24.91 | SU | HH, CP | Plume definition and extent along the west-central edge of the plume. | A<br>SA<br>Q<br>Q | VOC<br>metals<br>EDB<br>WL | Upgradient |
| 90MW0081 | 869429 | 251267 | 35.75 to 30.75 | FM | CP | Plume definition along the central axis. | SA<br>Q | metals<br>VOC, EDB | Upgradient |
| 90MW0082A | 869402 | 250812 | 55.44 to 50.44 | FM | HV, HG | Vertical gradients and groundwater model sensitivity along the southern extraction well fence. | Q | WL | Upgradient |
| 90MW0082B | 869398 | 250814 | 30.04 to 25.64 | FM | HV, HG | Vertical gradients and groundwater model sensitivity along the southern extraction well fence. | Q | WL | Upgradient |
| 90MW0083 | 869449 | 250478 | 25.26 to 20.26 | FM | HH, CR | Breakthrough monitoring at southern reinjection well fence. | A<br>Q<br>Q | VOC<br>EDB, metals, TSS<br>WL | Downgradient |
| 90MW0084A | 869839 | 250534 | -24.24 to -29.24 | FM | CBR | Breakthrough monitoring along the central axis. | A<br>Q | VOC<br>EDB | Downgradient |
| 90MW0084B | 869844 | 250534 | 30.89 to 25.89 | FM | CBR | Breakthrough monitoring along the central axis. | A<br>Q | VOC<br>EDB | Downgradient |
| 90MW0085A | 868553 | 250328 | -10.55 to -15.55 | FM | CR | Reinjection impact monitoring near Snake Pond and downgradient of the southern reinjection well fence. | Q | VOC, EDB, metals, TSS | Downgradient |
| | | | | | EC | Monitor water quality entering Snake Pond downgradient of ETR (study area). | SA | P | |
| 90MW0085B | 868553 | 250328 | 24.45 to 19.45 | FM | CR | Reinjection impact monitoring near Snake Pond and downgradient of the southern reinjection well fence. | Q | VOC, EDB, metals, TSS | Downgradient |
| | | | | | EC | Monitor water quality entering Snake Pond downgradient of ETR (study area). | SA | P | |
| 90MW0086A | 870190 | 251652 | -65.29 to -70.29 | SU | CBR | Monitoring for contaminants not captured by ETR system. | A | EDB | Upgradient |
| 90MW0086B | 870189 | 251652 | -30.29 to -35.29 | SU | CBR | Monitoring for contaminants not captured by ETR system. | A | EDB | Upgradient |
| 90MW0086C | 870185 | 251645 | -0.68 to -5.78 | FM | CBR | Monitoring for contaminants not captured by ETR system. | Q | EDB | Upgradient |
| 90MW0086D | 870186 | 251646 | 30.92 to 25.92 | SU | CBR | Monitoring for contaminants not captured by ETR system. | A | EDB | Upgradient |
| 90MW0087A | 870406 | 250946 | -30.74 to -35.74 | SU | CBR | Monitoring for contaminants not captured by ETR system. | Q | EDB | Downgradient |
| 90MW0087B | 870406 | 250946 | 34.26 to 29.26 | SU | CBR | Monitoring for contaminants not captured by ETR system. | A | EDB | Downgradient |
| 90MW0088A | 870402 | 250701 | -40.88 to -45.88 | SU | CBR | Monitoring for contaminants not captured by ETR system. | Q | EDB | Downgradient |

## Table 3-1
## FS-12 Groundwater Monitoring Network, January - December 2000

| Identification | Easting (ft) | Northing (ft) | Screen Interval (ft msl) | Well Type (a) | Monitoring Rationale (b) | Rationale for Location | Frequency (c) | Parameters (d) | Classification |
|---|---|---|---|---|---|---|---|---|---|
| 90MW0088B | 870402 | 250701 | 13.92 to 8.92 | SU | CBR | Monitoring for contaminants not captured by ETR system. | Q | EDB | Downgradient |
| 90MW0089A | 870330 | 250398 | -81.23 to -86.23 | FM | CBR | Monitoring for contaminants not captured by ETR system. | A | EDB | Downgradient |
| 90MW0089B | 870330 | 250398 | -50.23 to -55.23 | FM | CBR | Monitoring for contaminants not captured by ETR system. | Q | EDB | Downgradient |
| 90MW0089C | 870338 | 250399 | -30.07 to -35.07 | FM | CBR | Monitoring for contaminants not captured by ETR system. | Q | EDB | Downgradient |
| 90MW0089D | 870339 | 250399 | -5.07 to -10.07 | FM | CBR | Monitoring for contaminants not captured by ETR system. | Q | EDB | Downgradient |
| 90MW0089E | 870345 | 250400 | 25.08 to 20.08 | FM | CBR | Monitoring for contaminants not captured by ETR system. | Q | EDB | Downgradient |
| 90MW0089F | 870346 | 250400 | 60.08 to 55.08 | FM | CBR | Monitoring for contaminants not captured by ETR system. | Q | EDB | Downgradient |
| 90MW0090A | 870194 | 250160 | -74.69 to -79.69 | FM | CBR | Monitoring for contaminants not captured by ETR system. | A | EDB | Downgradient |
| 90MW0090B | 870194 | 250160 | -54.49 to -59.49 | SU | CBR | Monitoring for contaminants not captured by ETR system. | Q | EDB | Downgradient |
| 90MW0090C | 870192 | 250153 | -34.78 to -39.68 | SU | CBR | Monitoring for contaminants not captured by ETR system. | Q | EDB | Downgradient |
| 90MW0090D | 870192 | 250153 | -9.58 to -14.48 | SU | CBR | Monitoring for contaminants not captured by ETR system. | Q | EDB | Downgradient |
| 90MW0090E | 870190 | 250146 | 20.31 to 15.31 | FM | CBR | Monitoring for contaminants not captured by ETR system. | Q | EDB | Downgradient |
| 90MW0090F | 870190 | 250147 | 55.31 to 50.31 | SU | CBR | Monitoring for contaminants not captured by ETR system. | Q | EDB | Downgradient |
| 90MW0091A | 869201 | 249994 | -71.99 to -76.99 | SU | CBR | Monitoring for contaminants not captured by ETR system. | A | EDB | Downgradient |
| 90MW0091B | 869201 | 249994 | -49.99 to -54.99 | FM | CBR | Monitoring for contaminants not captured by ETR system. | A | EDB | Downgradient |
| 90MW0091C | 869199 | 249987 | -29.96 to -34.96 | FM | CBR | Monitoring for contaminants not captured by ETR system. | Q | EDB | Downgradient |
| 90MW0091D | 869198 | 249986 | -4.96 to -9.96 | FM | CBR | Monitoring for contaminants not captured by ETR system. | A | EDB | Downgradient |
| 90MW0091E | 869197 | 249980 | 20.08 to 15.08 | SU | CBR | Monitoring for contaminants not captured by ETR system. | A | EDB | Downgradient |
| 90MW0091F | 869197 | 249979 | 55.08 to 50.08 | SU | CBR | Monitoring for contaminants not captured by ETR system. | A | EDB | Downgradient |
| 90MW0100A | 868357 | 250913 | -73.95 to -78.77 | FM | CP | Delineation of the plumelet. | OT | EDB | Downgradient |
| 90MW0101A | 867592 | 252051 | -40.48 to -45.29 | FM | CP | Delineation of the plumelet. | OT | EDB | Downgradient |
| 90MW0102A | 867482 | 252012 | -41.43 to -46.13 | FM | CP | Delineation of the plumelet. | OT | EDB | Downgradient |
| 90MW0103A | 868409 | 250629 | -44.05 to -48.85 | FM | CP | Delineation of the plumelet. | OT | EDB | Downgradient |
| 90PLT01001 | 866254 | 252471 | NA | Effluent | DI | Characterize water leaving the treatment system. | Q | P, VOC, EDB, TOC, TDS, TSS, metals | Influent |

**Table 3-1**
**FS-12 Groundwater Monitoring Network, January - December 2000**

| Identification | Easting (ft) | Northing (ft) | Screen Interval (ft msl) | Well Type (a) | Monitoring Rationale (b) | Rationale for Location | Frequency (c) | Parameters (d) | Classification |
|---|---|---|---|---|---|---|---|---|---|
| 90PLT01023 | 866254 | 252471 | NA | Effluent | DI | Characterize water leaving the treatment system. | M* | VOC, EDB | Plant Sampling |
| 90PLT01024 | 866254 | 252471 | NA | Effluent | DI | Characterize water leaving the treatment system. | M* | EDB | Plant Sampling |
| 90PLT01028 | 866254 | 252471 | NA | Effluent | DI | Characterize water leaving the treatment system. | M* | EDB | Plant Sampling |
| 90PLT01029 | 866254 | 252471 | NA | Effluent | DI | Characterize water leaving the treatment system. | M* | EDB | Plant Sampling |
| 90PLT01030 | 866254 | 252471 | NA | Effluent | DI | Characterize water leaving the treatment system. | M* | EDB | Plant Sampling |
| 90PLT01042 | 866254 | 252471 | NA | Effluent | DI | Characterize water leaving the treatment system. | M* | VOC, EDB | Plant Sampling |
| 90PLT01046 | 866254 | 252471 | NA | Effluent | DI | Characterize water leaving the treatment system. | M* | EDB | Plant Sampling |
| 90PLT01047 | 866254 | 252471 | NA | Effluent | DI | Characterize water leaving the treatment system. | M* | EDB | Plant Sampling |
| 90PLT01048 | 866254 | 252471 | NA | Effluent | DI | Characterize water leaving the treatment system. | M | EDB | Plant Sampling |
| 90PLT01053 | 252471 | 866254 | NA | Effluent | DI | Characterize water leaving the treatment system. | M | P | Effluent |
| 90PZ0082 | 869402 | 250812 | 55.30 to 50.43 | FM | HV, HG | Vertical gradients and groundwater model sensitivity along the southern extraction well fence. | Q | WL | Upgradient |
| 90PZ0204 | 867238 | 251857 | -5.38 to -10.38 | FM | CP | Delineation of the plumelet. | OT | EDB | Downgradient |
| 90PZ0205* | 867239 | 251847 | 70.92 to 60.92 | FM | CP | Delineation of the plumelet. | OT | P, EDB, TOC | Downgradient |
| 90PZ1-B1 | 867992 | 251605 | -2.44 to -3.36 | SU | CP | Delineation of the plumelet. | OT | EDB | Downgradient |
| 90PZ1-C1 | 867991 | 251614 | 53.8 to 48.8 | SU | EC | Monitoring downgradient of treatment system. | SA | WL | Downgradient |
| 90RIW0009 | 868017 | 251399 | -0.83 to -40.83 | RIW | CP | Delineation of the plumelet. | A | EDB | Downgradient |
| 90SNP001 | 867933 | 251621 | UN | DP | CP | Delineation of the plumelet. | M | EDB | Downgradient |
| 90SNP002 | 867963 | 251004 | UN | DP | CP | Delineation of the plumelet. | M | EDB | Downgradient |
| 96MW0012 | 870810 | 249980 | UN | UN | CBR | Monitoring for contaminants not captured by ETR system. | SA | EDB | Downgradient |
| 96SV0004 | 868197 | 254398 | 89.20 to 59.20 | NA | CS | Source area monitoring of FS-12. | SA | VOC, EDB | Upgradient |
| 96SV0006 | 868534 | 254528 | 84.70 to 54.70 | NA | CS | Source area monitoring of FS-12. | SA | VOC, EDB | Upgradient |
| 96SV0013 | 868258 | 254740 | 86.9 to 56.9 | NA | CS | Source area monitoring of FS-12. | SA | VOC, EDB | Upgradient |
| ECMWPTP01D | 874541 | 253215 | -12.99 to -17.99 | SU | EC | Monitor ambient water quality at Peters Pond (reference area). | SA | P | Reference |
| ECMWPTP01S | 874541 | 253215 | 67.11 to 62.11 | SU | EC | Monitor ambient water quality at Peters Pond (reference area). | SA | P | Reference |
| ECMWSNP01 | 866890 | 251424 | 73.84 to 68.84 | SU | EC | Monitoring crossgradient of treatment system. | SA | WL | Downgradient |
| ECMWSNP02D | 867933 | 251616 | -9.54 to -14.54 | Microwell | EC | Monitor water quality entering Snake Pond downgradient of ETR (study area). | Q<br>SA<br>SA | VOC, EDB<br>P<br>WL | Downgradient |

**Table 3-1**
**FS-12 Groundwater Monitoring Network, January - December 2000**

| Identification | Easting (ft) | Northing (ft) | Screen Interval (ft msl) | Well Type (a) | Monitoring Rationale (b) | Rationale for Location | Frequency (c) | Parameters (d) | Classification |
|---|---|---|---|---|---|---|---|---|---|
| ECMWSNP02S | 867933 | 251616 | 25.36 to 20.36 | Microwell | EC | Monitor water quality entering Snake Pond downgradient of ETR (study area). | Q<br>SA<br>SA | VOC, EDB<br>P<br>WL | Downgradient |
| ECMWSNP03D | 867997 | 251198 | -9.54 to -14.54 | Microwell | EC | Monitor water quality entering Snake Pond downgradient of ETR (study area). | Q<br>SA<br>SA | VOC, EDB<br>P<br>WL | Downgradient |
| ECMWSNP03S | 867997 | 251198 | 30.36 to 25.36 | Microwell | EC | Monitor water quality entering Snake Pond downgradient of ETR (study area). | Q<br>SA<br>SA | VOC, EDB<br>P<br>WL | Downgradient |
| ECMWTRP01D | 884303 | 255276 | 11.93 to 6.93 | SU | EC | Monitor ambient groundwater quality entering Triangle Pond (reference area). | SA | P<br>WL | Reference |
| ECMWTRP01S | 884303 | 255276 | 66.53 to 60.03 | SU | EC | Monitor ambient groundwater quality entering Triangle Pond (reference area). | SA | P<br>WL | Reference |
| ECPZSNP01 | 868000 | 251252 | 69.18 to 65.18 | PZ | EC | Monitoring downgradient of treatment system. | SA | WL | Downgradient |
| ECPZSNP02 | 868412 | 250620 | 69.34 to 65.34 | PZ | EC | Monitoring downgradient of treatment system. | SA | WL | Downgradient |
| ECPZSNP10A | 866553 | 249864 | 8.48 to 3.48 | PZ | EC | Monitoring downgradient of treatment system. | SA | WL | Downgradient |
| ECPZSNP10B | 866553 | 249864 | 55.49 to 50.49 | PZ | EC | Monitoring downgradient of treatment system. | SA | WL | Downgradient |
| ECPZSNP11A | 867617 | 248855 | -13.52 to -18.52 | PZ | EC | Monitoring downgradient of treatment system. | SA | WL | Downgradient |
| ECPZSNP11B | 867615 | 248854 | 56.49 to 51.49 | PZ | EC | Monitoring downgradient of treatment system. | SA | WL | Downgradient |
| ECPZWK01 | 865808 | 249412 | 59.48 to 54.48 | PZ | EC | Monitoring downgradient of treatment system. | SA | WL | Downgradient |
| ECPZWK02 | 866674 | 248179 | 67.35 to 62.35 | PZ | EC | Monitoring downgradient of treatment system. | SA | WL | Downgradient |
| ECSGPTP02 | 876932 | 251391 | NA | SG | EC | Characterize pond hydraulics. Peters Pond (reference area). | M | WL | Reference |
| ECSGSNP02 | 866654 | 249907 | NA | SG | EC | Characterize pond hydraulics. Snake Pond (study area). | M | WL | Downgradient |
| ECSGTRP02 | 885155 | 255782 | NA | SG | EC | Characterize pond hydraulics. Triangle Pond (reference area). | M | WL | Reference |
| ECSGWKP02 | 866483 | 249715 | NA | SG | EC | Characterize pond hydraulics. Weeks Pond (reference area). | M | WL | Downgradient |

Notes: This table reflects the SPEIM program and does not address deviations outlined in project notes (Appendix A).

*Piezometer 90PZ0205 was replaced by 90MP0059D in the direct impact monitoring program in April 2000 due to access limitations.

ETR = extraction, treatment, reinjection
FS-12 = Fuel Spill-12
ft = feet
JBT = J. Braden Thompson
NA = not applicable
msl = mean sea level
UN = unknown

(a)
DP = drivepoint
EW = extraction well
FM = flush-mount
MP = multi-point well
P = peristaltic pump
PZ = piezometer
RIW = reinjection well
SD = small diameter pump
SG = staff gauge
SU = stick-up
UN = unknown

(b)
CBR = contaminant breakthrough monitoring
CP = contaminant plume extent monitoring
CR = contaminant plume reinjection monitoring
CS = contaminant source area monitoring
DI = direct impact monitoring
EC = ecological assessment
HG = hydraulic groundwater model sensitivity
HH = horizontal hydraulic gradients
HV = vertical hydraulic gradients

(c)
OT = one time
A = annually
M = monthly
Q = quarterly
SA = semiannually
M* = temporary monthly sampling during plant reconfiguration, discontinued after first quarter

(d)
EDB = ethylene dibromide
metals = target analyte list metals
P (physicochemical)= nutrients ($NO_3$, $NO_2$, $PO_4$, $NH_3$), total nitrogen, total phosphorus, hardness, alkalinity, total organic carbon, dissolved organic carbon
TDS = total dissolved solids
TOC = total organic carbon
TSS = total suspended solids
VOC = volatile organic compound
WL = water level

## Table 3-2
## FS-12 Surface Water and Sediment Sampling Locations

| Ecosystem | Sampling Location | Rationale for Sampling Location | Surface Water | | | Sediment | | |
|---|---|---|---|---|---|---|---|---|
| | | | Number of Samples | Parameters | Frequency | Number of Samples | Parameters | Frequency |
| Snake Pond (Study Area) | ECSNP03 | Characterize deeper portions of the pond and potential differences due to stratification | 1 | Physicochemical analysis | Quarterly | | | |
| | ECSNP06 | To characterize the pond and potential differences due to stratification | 1 | Physicochemical analysis | Quarterly | | | |
| | ECSNP07 | Along eastern shoreline (where the ETR system will be located) within 30 feet of the shore in area that may be influenced by ETR system, near SMP1-C | 1 | Physicochemical analysis | Quarterly | | | |
| | ECSNP09 | On northeastern shoreline near microwell ECMWSNP02S,D, which is used to determine if EDB is upwelling in Snake Pond | 1 | VOCs, EDB | Once | 1 | VOCs, EDB, TOC, grain size | Once |
| | ECSGSNP01 Staff gauge | Characterize pond hydraulics | 1 | Water level | Monthly | | | |
| | ECSGSNP02 Staff gauge | Characterize pond hydraulics | 1 | Water level | Monthly | | | |
| Triangle Pond (Reference Area) | ECTRP01 | Shallow sample along the northwestern shore; location of groundwater discharge to surface water | 1 | Physicochemical analysis | Quarterly | | | |
| | ECTRP03 | Shallow sample along the southeastern shore; location of surface water discharge to groundwater | 1 | Physicochemical analysis | Quarterly | | | |
| | ECTRP05 | Characterize deeper portions of the pond and potential differences due to stratification | 1 | Physicochemical analysis | Quarterly | | | |
| | ECSGTRP01 Staff gauge | Characterize pond hydraulics | 1 | Water level | Monthly | | | |
| | ECSGTRP02 Staff gauge | Characterize pond hydraulics | 1 | Water level | Monthly | | | |
| Peters Pond (Reference Area) | ECPTP01 | Shallow sample; possible location of surface water discharge to groundwater | 1 | Physicochemical analysis | 6 times/yr* | | | |
| | ECPTP04 | Characterize deeper portions of the pond and potential differences due to stratification | 1 | Physicochemical analysis | 6 times/yr* | | | |
| | ECPTP05 | Characterize deeper portions of the pond and potential differences due to stratification | 1 | Physicochemical analysis | 6 times/yr* | | | |
| | ECSGPTP01 Staff gauge | Characterize pond hydraulics | 1 | Water level | Monthly | | | |
| | ECSGPTP02 Staff gauge | Characterize pond hydraulics | 1 | Water level | Monthly | | | |

* 6 times/yr = sampling scheduled for February, May, June, August, September, and November

EDB = ethylene dibromide
TOC = total organic carbon
ETR = extraction, treatment and reinjection
VOC = volatile organic compound

**Table 4-1**
**FS-12 Groundwater Extraction and Reinjection Rates**

| | | Extraction Wells | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Week Ending | Total | 90EW0006 (32,0)[2] | 90EW0007 (32,32) | 90EW0008 (37,37) | 90EW0009 (37,33) | 90EW0010 (20,0) | 90EW0011 (20,20) | 90EW0012 (20,19) | 90EW0013 (27,27) | 90EW0014 (20,32) | 90EW0015 (20,32) | 90EW0016 (20,32) | 90EW0017 (25,39) | 90EW0018 (25,43) | 90EW0019 (25,32) | 90EW0020 (15,15) | 90EW0021 (15,15) | 90EW0022 (25,25) | 90EW0023 (30,30) | 90EW0024 (40,37) | 90EW0025 (40,41) | 90EW0026 (40,40) | 90EW0027 (43,42) | 90EW0028 (55,55) | 90EW0029 (65,55) | 90EW0030 (55,54) |
| 1/7/2000 | 782 | 32 | 33 | 37 | 37 | 20 | 20 | 20 | 27 | 20 | 20 | 20 | 25 | 22 | 25 | 15 | 15 | 26 | 30 | 39 | 40 | 40 | 42 | 65 | 54 | 59 |
| 1/14/2000 | 770 | 32 | 32 | 36 | 37 | 19 | 19 | 19 | 27 | 20 | 20 | 20 | 27 | 20 | 27 | 15 | 15 | 27 | 30 | 38 | 40 | 40 | 42 | 59 | 59 | 51 |
| 1/21/2000 | 781 | 29 | 31 | 35 | 35 | 20 | 20 | 20 | 27 | 20 | 20 | 20 | 30 | 25 | 30 | 15 | 15 | 26 | 30 | 38 | 40 | 40 | 43 | 55 | 65 | 55 |
| 1/28/2000 | 737 | 30 | 31 | 35 | 35 | 19 | 19 | 19 | 25 | 19 | 19 | 19 | 24 | 24 | 24 | 14 | 14 | 25 | 29 | 37 | 38 | 38 | 41 | 52 | 62 | 48 |
| 2/4/2000 | 781 | 32 | 33 | 37 | 37 | 20 | 20 | 20 | 27 | 20 | 20 | 20 | 25 | 25 | 25 | 15 | 15 | 25 | 30 | 38 | 40 | 40 | 43 | 55 | 65 | 55 |
| 2/11/2000 | 781 | 32 | 33 | 37 | 37 | 20 | 20 | 20 | 27 | 20 | 20 | 20 | 25 | 25 | 25 | 15 | 15 | 25 | 30 | 38 | 40 | 40 | 43 | 55 | 65 | 55 |
| 2/18/2000 | 777 | 32 | 33 | 37 | 37 | 19 | 20 | 19 | 27 | 20 | 20 | 20 | 25 | 25 | 25 | 15 | 15 | 25 | 30 | 38 | 40 | 40 | 43 | 53 | 65 | 53 |
| 2/25/2000 | 771 | 32 | 33 | 37 | 37 | 19 | 19 | 19 | 27 | 20 | 11 | 20 | 25 | 25 | 25 | 15 | 15 | 25 | 30 | 38 | 40 | 40 | 43 | 55 | 65 | 55 |
| 3/4/2000 | 759 | 32 | 33 | 37 | 37 | 20 | 20 | 20 | 27 | 20 | 20 | 20 | 25 | 25 | 25 | 15 | 15 | 26 | 30 | 39 | 40 | 40 | 43 | 37 | 62 | 52 |
| 3/11/2000 | 777 | 32 | 33 | 37 | 37 | 20 | 20 | 20 | 27 | 20 | 20 | 20 | 25 | 25 | 25 | 15 | 15 | 25 | 30 | 38 | 40 | 40 | 43 | 55 | 60 | 55 |
| 3/18/2000 | 777 | 32 | 33 | 37 | 37 | 20 | 20 | 20 | 27 | 20 | 20 | 20 | 25 | 25 | 25 | 15 | 15 | 25 | 30 | 38 | 40 | 40 | 43 | 55 | 60 | 55 |
| 3/25/2000 | 775 | 32 | 33 | 37 | 37 | 20 | 20 | 20 | 27 | 20 | 20 | 20 | 25 | 25 | 25 | 15 | 15 | 25 | 30 | 39 | 37 | 40 | 43 | 55 | 60 | 55 |
| 4/1/2000 | 753 | 32 | 33 | 37 | 37 | 20 | 18 | 18 | 25 | 19 | 19 | 19 | 24 | 24 | 24 | 14 | 14 | 26 | 29 | 36 | 40 | 38 | 41 | 52 | 58 | 55 |
| 4/8/2000 | 782 | 32 | 32 | 37 | 37 | 20 | 20 | 20 | 27 | 20 | 20 | 20 | 25 | 25 | 25 | 15 | 15 | 27 | 32 | 38 | 41 | 42 | 43 | 55 | 60 | 55 |
| 4/15/2000 | 781 | 32 | 32 | 37 | 37 | 20 | 19 | 19 | 27 | 20 | 20 | 20 | 25 | 25 | 25 | 15 | 15 | 27 | 32 | 38 | 41 | 42 | 43 | 55 | 60 | 55 |
| 4/22/2000 | 772 | 32 | 32 | 37 | 29 | 20 | 20 | 20 | 27 | 20 | 20 | 20 | 24 | 25 | 25 | 15 | 15 | 27 | 32 | 37 | 41 | 42 | 43 | 55 | 60 | 55 |
| 4/29/2000 | 780 | 32 | 32 | 37 | 37 | 20 | 19 | 19 | 27 | 20 | 19 | 20 | 25 | 25 | 25 | 15 | 15 | 26 | 32 | 38 | 41 | 42 | 43 | 55 | 60 | 55 |
| 5/6/2000 | 713 | 29 | 33 | 32 | 32 | 18 | 18 | 18 | 24 | 19 | 19 | 19 | 22 | 22 | 22 | 14 | 14 | 25 | 29 | 35 | 38 | 39 | 44 | 48 | 52 | 48 |
| 5/13/2000 | 756 | 32 | 33 | 37 | 37 | 20 | 20 | 20 | 36 | 20 | 20 | 20 | 25 | 25 | 25 | 14 | 15 | 15 | 19 | 40 | 41 | 42 | 43 | 47 | 57 | 54 |
| 5/20/2000 | 797 | 32 | 31 | 37 | 35 | 20 | 20 | 19 | 31 | 23 | 23 | 23 | 29 | 30 | 26 | 14 | 15 | 25 | 30 | 37 | 41 | 39 | 42 | 55 | 65 | 55 |
| 5/27/2000 | 776 | 32 | 32 | 37 | 34 | 20 | 19 | 19 | 27 | 20 | 20 | 20 | 25 | 25 | 25 | 15 | 15 | 25 | 30 | 38 | 41 | 40 | 42 | 55 | 65 | 55 |
| 6/3/2000 | 782 | 25 | 32 | 37 | 34 | 15 | 20 | 19 | 27 | 23 | 23 | 23 | 28 | 29 | 26 | 15 | 15 | 25 | 30 | 38 | 41 | 40 | 42 | 55 | 65 | 55 |
| **Average** | 771 | 31 | 32 | 37 | 36 | 19 | 19 | 19 | 27 | 20 | 20 | 20 | 25 | 25 | 25 | 15 | 15 | 25 | 30 | 38 | 40 | 40 | 43 | 54 | 61 | 54 |
| **Percentage of Design** | 99 | 98 | 102 | 99 | 97 | 96 | 97 | 97 | 101 | 100 | 98 | 100 | 101 | 99 | 101 | 99 | 99 | 100 | 99 | 95 | 100 | 100 | 99 | 98 | 94 | 98 |
| 6/10/2000 | 797 | NA | 32 | 37 | 34 | NA | 20 | 19 | 27 | 32 | 32 | 32 | 39 | 43 | 32 | 15 | 15 | 25 | 30 | 37 | 41 | 40 | 42 | 55 | 65 | 55 |
| 6/17/2000 | 797 | NA | 32 | 37 | 34 | NA | 19 | 18 | 27 | 32 | 32 | 32 | 39 | 43 | 32 | 15 | 15 | 25 | 30 | 37 | 41 | 40 | 43 | 55 | 65 | 55 |
| 6/24/2000 | 796 | NA | 32 | 37 | 33 | NA | 19 | 17 | 27 | 32 | 32 | 32 | 40 | 42 | 32 | 15 | 15 | 25 | 30 | 37 | 41 | 40 | 43 | 55 | 65 | 55 |
| 7/1/2000 | 793 | NA | 32 | 37 | 33 | NA | 18 | 17 | 27 | 31 | 32 | 32 | 40 | 42 | 32 | 15 | 15 | 25 | 30 | 37 | 41 | 40 | 42 | 55 | 65 | 55 |
| 7/8/2000 | 792 | NA | 32 | 37 | 33 | NA | 18 | 17 | 27 | 31 | 31 | 32 | 40 | 42 | 31 | 15 | 15 | 25 | 30 | 38 | 41 | 40 | 43 | 55 | 65 | 55 |
| 7/15/2000 | 789 | NA | 32 | 37 | 33 | NA | 17 | 16 | 27 | 30 | 31 | 32 | 40 | 42 | 31 | 15 | 15 | 25 | 30 | 38 | 41 | 40 | 43 | 55 | 65 | 55 |
| 7/22/2000 | 789 | NA | 32 | 37 | 33 | NA | 17 | 16 | 27 | 30 | 31 | 32 | 40 | 42 | 31 | 15 | 15 | 25 | 30 | 38 | 41 | 40 | 43 | 55 | 65 | 55 |
| 7/29/2000 | 786 | NA | 32 | 37 | 33 | NA | 17 | 16 | 27 | 29 | 31 | 32 | 40 | 40 | 31 | 15 | 15 | 25 | 30 | 38 | 41 | 40 | 43 | 55 | 65 | 55 |
| 8/5/2000 | 740 | NA | 30 | 35 | 31 | NA | 15 | 14 | 25 | 27 | 29 | 30 | 38 | 39 | 30 | 14 | 14 | 23 | 28 | 36 | 39 | 38 | 40 | 52 | 61 | 52 |
| 8/12/2000 | 787 | NA | 32 | 37 | 33 | NA | 16 | 15 | 27 | 30 | 31 | 32 | 40 | 42 | 32 | 15 | 15 | 25 | 30 | 38 | 41 | 40 | 42 | 55 | 64 | 55 |
| 8/19/2000 | 739 | NA | 33 | 38 | 29 | NA | 15 | 15 | 26 | 28 | 28 | 29 | 39 | 34 | 30 | 15 | 15 | 25 | 29 | 33 | 39 | 36 | 43 | 51 | 59 | 49 |
| 8/26/2000 | 781 | NA | 32 | 37 | 33 | NA | 15 | 14 | 27 | 29 | 30 | 32 | 39 | 42 | 32 | 15 | 15 | 25 | 30 | 37 | 41 | 40 | 43 | 55 | 65 | 54 |
| 9/2/2000 | 766 | NA | 32 | 36 | 33 | NA | 15 | 14 | 27 | 29 | 30 | 32 | 39 | 42 | 32 | 15 | 15 | 25 | 30 | 37 | 41 | 40 | 42 | 49 | 64 | 49 |
| 9/9/2000 | 779 | NA | 32 | 36 | 33 | NA | 14 | 14 | 27 | 29 | 30 | 32 | 39 | 42 | 32 | 15 | 15 | 25 | 30 | 37 | 41 | 40 | 43 | 55 | 65 | 54 |
| 9/16/2000 | 774 | NA | 33 | 36 | 33 | NA | 14 | 13 | 27 | 28 | 29 | 31 | 37 | 38 | 31 | 15 | 26 | 25 | 30 | 38 | 41 | 38 | 42 | 55 | 64 | 53 |
| 9/23/2000 | 752 | NA | 24 | 27 | 24 | NA | 14 | 13 | 27 | 27 | 29 | 31 | 33 | 31 | 31 | 15 | 37 | 25 | 30 | 39 | 41 | 38 | 42 | 55 | 65 | 54 |
| 9/30/2000 | 768 | NA | 30 | 37 | 32 | NA | 13 | 13 | 27 | 26 | 28 | 31 | 33 | 31 | 31 | 15 | 37 | 25 | 30 | 38 | 41 | 37 | 42 | 55 | 65 | 54 |
| 10/7/2000 | 765 | NA | 31 | 37 | 32 | NA | 13 | 12 | 27 | 25 | 28 | 31 | 33 | 31 | 31 | 15 | 37 | 25 | 30 | 38 | 41 | 34 | 42 | 55 | 65 | 54 |
| 10/14/2000 | 763 | NA | 31 | 37 | 31 | NA | 12 | 12 | 27 | 25 | 27 | 30 | 33 | 32 | 31 | 15 | 35 | 25 | 30 | 38 | 41 | 34 | 42 | 55 | 65 | 54 |
| 10/21/2000 | 764 | NA | 32 | 37 | 31 | NA | 12 | 11 | 30 | 24 | 27 | 30 | 39 | 41 | 31 | 15 | 15 | 25 | 30 | 37 | 41 | 40 | 42 | 55 | 65 | 54 |
| 10/28/2000 | 763 | NA | 32 | 37 | 31 | NA | 11 | 11 | 30 | 24 | 26 | 30 | 39 | 41 | 31 | 15 | 15 | 25 | 30 | 37 | 41 | 40 | 42 | 55 | 65 | 53 |
| 11/4/2000 | 755 | NA | 29 | 34 | 28 | NA | 11 | 11 | 30 | 25 | 26 | 30 | 39 | 41 | 32 | 15 | 15 | 25 | 30 | 37 | 41 | 40 | 42 | 55 | 65 | 54 |
| 11/11/2000 | 762 | NA | 32 | 37 | 31 | NA | 10 | 11 | 30 | 25 | 26 | 30 | 38 | 41 | 31 | 15 | 15 | 25 | 30 | 37 | 41 | 40 | 42 | 55 | 65 | 54 |
| 11/18/2000 | 761 | NA | 32 | 37 | 31 | NA | 10 | 10 | 30 | 25 | 26 | 30 | 39 | 41 | 32 | 15 | 15 | 25 | 30 | 37 | 41 | 40 | 42 | 55 | 65 | 54 |
| 11/25/2000 | 739 | NA | 31 | 36 | 30 | NA | 9 | 10 | 29 | 24 | 24 | 29 | 38 | 40 | 31 | 15 | 15 | 24 | 29 | 36 | 40 | 39 | 41 | 53 | 63 | 52 |
| 12/2/2000 | 747 | NA | 32 | 37 | 30 | NA | 9 | 9 | 30 | 24 | 25 | 30 | 39 | 36 | 31 | 15 | 15 | 25 | 30 | 37 | 41 | 40 | 42 | 55 | 64 | 53 |
| 12/9/2000 | 749 | NA | 32 | 37 | 30 | NA | 8 | 9 | 30 | 24 | 24 | 30 | 39 | 39 | 31 | 15 | 15 | 25 | 30 | 37 | 39 | 40 | 41 | 55 | 65 | 54 |
| 12/16/2000 | 734 | NA | 32 | 36 | 30 | NA | 8 | 8 | 29 | 24 | 23 | 30 | 38 | 39 | 31 | 15 | 15 | 25 | 29 | 36 | 39 | 39 | 40 | 53 | 63 | 53 |
| 12/23/2000 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 12/31/2000 | 733 | NA | 33 | 36 | 30 | NA | 7 | 8 | 26 | 24 | 23 | 31 | 37 | 41 | 31 | 14 | 14 | 23 | 29 | 36 | 40 | 39 | 42 | 53 | 63 | 55 |
| **Average** | 768 | NA | 31 | 36 | 32 | NA | 14 | 13 | 28 | 27 | 28 | 31 | 38 | 39 | 31 | 15 | 18 | 25 | 30 | 37 | 41 | 39 | 42 | 54 | 64 | 54 |
| **Percentage of Design** | 96 | NA | 98 | 98 | 95 | NA | 70 | 72 | 103 | 85 | 89 | 97 | 98 | 91 | 98 | 99 | 122 | 99 | 99 | 100 | 99 | 97 | 100 | 99 | 99 | 99 |

**Table 4-1**
**FS-12 Groundwater Extraction and Reinjection Rates**

| | | Reinjection Wells | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Week Ending | Total | 90RIW0005 (25,0) | 90RIW0006 (25,0) | 90RIW0007 (36,0) | 90RIW0008 (41,0) | 90RIW0009 (48,0) | 90RIW0010 (55,75) | 90RIW0013 (54,75) | 90RIW0014 (44,75) | 90RIW0015 (35,75) | 90RIW0016 (49,75) | 90RIW0017 (49,75) | 90RIW0018 (49,10) | 90RIW0020 (46,15) | 90RIW0021 (46,15) | 90RIW0022 (35,15) | 90RIW0023 (40,15) | 90RIW0024 (26,15) | 90RIW0025 (22,15) | 90RIW0026 (22,15) | 90RIW0027 (22,11) | 90RIW0028 (15,70) | 90RIW0029 (0,75) | 90RIW0030 (0,75) |
| 01/07/00 | 775 | 28 | 28 | 33 | 39 | 50 | 54 | 47 | 45 | 32 | 45 | 43 | 48 | 44 | 38 | 31 | 22 | 23 | 27 | 48 | 39 | 10 | 0 | 0 |
| 01/14/00 | 759 | 21 | 21 | 33 | 39 | 50 | 55 | 47 | 45 | 32 | 44 | 43 | 47 | 44 | 37 | 31 | 21 | 23 | 27 | 48 | 39 | 10 | 0 | 0 |
| 01/21/00 | 763 | 17 | 17 | 34 | 40 | 51 | 56 | 48 | 45 | 33 | 45 | 44 | 48 | 45 | 38 | 31 | 22 | 24 | 28 | 49 | 40 | 10 | 0 | 0 |
| 01/28/00 | 738 | 27 | 27 | 12 | 38 | 23 | 52 | 46 | 43 | 31 | 49 | 48 | 57 | 41 | 35 | 28 | 20 | 31 | 41 | 44 | 36 | 8 | 0 | 0 |
| 02/04/00 | 781 | 23 | 23 | 46 | 46 | 48 | 52 | 46 | 55 | 38 | 43 | 50 | 51 | 43 | 45 | 35 | 20 | 26 | 30 | 33 | 21 | 9 | 0 | 0 |
| 02/11/00 | 781 | 15 | 15 | 47 | 48 | 49 | 52 | 46 | 57 | 39 | 43 | 51 | 52 | 46 | 46 | 37 | 21 | 26 | 30 | 35 | 20 | 9 | 0 | 0 |
| 02/18/00 | 777 | 21 | 21 | 46 | 47 | 49 | 51 | 46 | 56 | 38 | 42 | 50 | 51 | 52 | 46 | 36 | 20 | 25 | 29 | 23 | 19 | 8 | 0 | 0 |
| 02/25/00 | 771 | 18 | 18 | 46 | 47 | 49 | 51 | 46 | 55 | 38 | 42 | 50 | 51 | 55 | 46 | 36 | 20 | 25 | 34 | 19 | 19 | 7 | 0 | 0 |
| 03/04/00 | 759 | 17 | 17 | 46 | 46 | 48 | 51 | 45 | 55 | 37 | 42 | 49 | 50 | 52 | 49 | 35 | 20 | 24 | 33 | 18 | 19 | 6 | 0 | 0 |
| 03/11/00 | 777 | 19 | 19 | 47 | 47 | 49 | 52 | 46 | 55 | 38 | 43 | 50 | 51 | 44 | 55 | 36 | 20 | 25 | 34 | 19 | 20 | 8 | 0 | 0 |
| 03/18/00 | 777 | 21 | 21 | 46 | 47 | 48 | 51 | 45 | 55 | 38 | 42 | 49 | 50 | 50 | 55 | 36 | 20 | 24 | 34 | 19 | 19 | 7 | 0 | 0 |
| 03/25/00 | 777 | 15 | 15 | 47 | 47 | 49 | 51 | 46 | 56 | 38 | 43 | 50 | 51 | 48 | 63 | 36 | 20 | 25 | 35 | 19 | 19 | 5 | 0 | 0 |
| 04/01/00 | 770 | 19 | 19 | 46 | 46 | 48 | 51 | 45 | 55 | 37 | 42 | 49 | 50 | 47 | 61 | 35 | 20 | 24 | 34 | 18 | 19 | 4 | 0 | 0 |
| 04/08/00 | 766 | 19 | 19 | 46 | 46 | 48 | 51 | 45 | 55 | 37 | 42 | 49 | 50 | 46 | 61 | 35 | 19 | 24 | 34 | 17 | 18 | 4 | 0 | 0 |
| 04/15/00 | 781 | 25 | 25 | 46 | 47 | 48 | 51 | 45 | 55 | 37 | 42 | 49 | 50 | 46 | 62 | 35 | 19 | 24 | 34 | 18 | 19 | 5 | 0 | 0 |
| 04/22/00 | 772 | 12 | 12 | 47 | 47 | 49 | 51 | 46 | 56 | 38 | 43 | 50 | 51 | 48 | 63 | 36 | 20 | 25 | 35 | 19 | 19 | 5 | 0 | 0 |
| 04/29/00 | 779 | 21 | 21 | 46 | 47 | 49 | 51 | 45 | 55 | 37 | 42 | 49 | 50 | 48 | 61 | 35 | 20 | 24 | 35 | 18 | 19 | 5 | 0 | 0 |
| 05/06/00 | 730 | 29 | 20 | 43 | 44 | 45 | 47 | 46 | 52 | 35 | 40 | 47 | 48 | 40 | 58 | 33 | 19 | 20 | 31 | 14 | 15 | 4 | 0 | 0 |
| 05/13/00 | 733 | 23 | 22 | 34 | 36 | 47 | 49 | 51 | 39 | 36 | 39 | 47 | 43 | 41 | 36 | 40 | 40 | 21 | 28 | 32 | 20 | 7 | 0 | 0 |
| 05/20/00 | 756 | 24 | 23 | 29 | 32 | 56 | 55 | 52 | 20 | 40 | 46 | 51 | 34 | 35 | 41 | 43 | 36 | 23 | 31 | 61 | 20 | 2 | 0 | 0 |
| 05/27/00 | 765 | 24 | 24 | 34 | 40 | 49 | 52 | 52 | 48 | 37 | 46 | 41 | 49 | 53 | 45 | 30 | 41 | 24 | 22 | 19 | 20 | 16 | 0 | 0 |
| 06/03/00 | 770 | 25 | 25 | 35 | 43 | 47 | 51 | 51 | 46 | 35 | 44 | 38 | 45 | 77 | 49 | 30 | 42 | 21 | 21 | 18 | 20 | 7 | 0 | 0 |
| 06/10/00 | 783 | 26 | 26 | 36 | 55 | 48 | 52 | 52 | 47 | 37 | 46 | 40 | 47 | 35 | 55 | 39 | 44 | 23 | 23 | 17 | 19 | 17 | 0 | 0 |
| 06/17/00 | 786 | 26 | 26 | 36 | 57 | 48 | 52 | 52 | 46 | 37 | 46 | 40 | 47 | 36 | 60 | 39 | 45 | 23 | 23 | 11 | 20 | 17 | 0 | 0 |
| 06/24/00 | 786 | 26 | 26 | 36 | 58 | 48 | 52 | 53 | 36 | 38 | 47 | 41 | 48 | 22 | 62 | 41 | 44 | 24 | 24 | 20 | 20 | 18 | 0 | 0 |
| 07/01/00 | 772 | 26 | 26 | 36 | 60 | 48 | 52 | 53 | 25 | 38 | 47 | 41 | 48 | 19 | 61 | 40 | 43 | 24 | 25 | 26 | 20 | 15 | 0 | 0 |
| 07/08/00 | 766 | 25 | 25 | 36 | 38 | 47 | 52 | 52 | 46 | 41 | 44 | 47 | 46 | 37 | 46 | 38 | 36 | 22 | 23 | 32 | 21 | 11 | 0 | 0 |
| 07/15/00 | 769 | 25 | 25 | 36 | 33 | 48 | 52 | 52 | 46 | 44 | 45 | 47 | 46 | 42 | 46 | 38 | 36 | 22 | 23 | 33 | 21 | 9 | 0 | 0 |
| 07/22/00 | 777 | 26 | 26 | 36 | 50 | 48 | 52 | 52 | 41 | 39 | 46 | 43 | 47 | 32 | 55 | 39 | 41 | 23 | 24 | 23 | 20 | 14 | 0 | 0 |
| 07/29/00 | 797 | 12 | 12 | 17 | 17 | 22 | 59 | 72 | 72 | 64 | 61 | 63 | 28 | 28 | 30 | 26 | 26 | 16 | 19 | 23 | 18 | 31 | 51 | 28 |
| **Average** | 770 | 22 | 21 | 39 | 44 | 47 | 52 | 49 | 49 | 38 | 44 | 47 | 48 | 43 | 50 | 35 | 28 | 24 | 29 | 26 | 22 | 10 | 2 | 1 |
| **Percentage of Design** | 98 | 87 | 86 | 107 | 108 | 98 | 94 | 91 | 111 | 108 | 91 | 96 | 97 | 94 | 109 | 101 | 70 | 91 | 132 | 120 | 100 | 64 | NA | NA |
| 08/05/00 | 713 | NA | NA | NA | NA | NA | 49 | 76 | 76 | 72 | 75 | 76 | 18 | 24 | 23 | 29 | 23 | 23 | 24 | 24 | 52 | 2 | 40 | 9 |
| 08/12/00 | 775 | NA | NA | NA | NA | NA | 44 | 79 | 81 | 72 | 76 | 79 | 30 | 34 | 33 | 25 | 28 | 35 | 30 | 37 | 43 | 12 | 37 | 0 |
| 08/19/00 | 743 | NA | NA | NA | NA | NA | 51 | 78 | 87 | 56 | 76 | 78 | 31 | 33 | 30 | 19 | 30 | 33 | 29 | 37 | 36 | 12 | 27 | 0 |
| 08/26/00 | 760 | NA | NA | NA | NA | NA | 55 | 80 | 97 | 57 | 78 | 81 | 32 | 35 | 31 | 25 | 32 | 36 | 32 | 41 | 44 | 3 | 0 | 0 |
| 09/02/00 | 740 | NA | NA | NA | NA | NA | 48 | 80 | 91 | 74 | 77 | 80 | 31 | 32 | 27 | 25 | 28 | 31 | 29 | 35 | 47 | 5 | 0 | 0 |
| 09/09/00 | 762 | NA | NA | NA | NA | NA | 55 | 83 | 95 | 75 | 77 | 82 | 31 | 37 | 24 | 21 | 32 | 39 | 27 | 35 | 47 | 1 | 0 | 0 |
| 09/16/00 | 760 | NA | NA | NA | NA | NA | 55 | 82 | 95 | 76 | 77 | 82 | 32 | 37 | 24 | 22 | 31 | 38 | 26 | 34 | 46 | 1 | 0 | 0 |
| 09/23/00 | 755 | NA | NA | NA | NA | NA | 55 | 84 | 96 | 76 | 76 | 81 | 32 | 40 | 24 | 22 | 31 | 37 | 26 | 36 | 39 | 0 | 0 | 0 |
| 09/30/00 | 778 | NA | NA | NA | NA | NA | 56 | 85 | 104 | 75 | 76 | 81 | 31 | 33 | 19 | 25 | 29 | 37 | 25 | 32 | 45 | 5 | 20 | 0 |
| 10/7/2000 | 763 | NA | NA | NA | NA | NA | 79 | 80 | 104 | 71 | 73 | 77 | 30 | 22 | 40 | 23 | 28 | 33 | 19 | 27 | 38 | 5 | 14 | 0 |
| 10/14/2000 | 767 | NA | NA | NA | NA | NA | 80 | 82 | 82 | 81 | 74 | 78 | 30 | 26 | 53 | 26 | 29 | 34 | 25 | 29 | 37 | 0 | 0 | 0 |
| 10/21/2000 | 762 | NA | NA | NA | NA | NA | 78 | 82 | 73 | 85 | 74 | 77 | 30 | 27 | 52 | 25 | 28 | 33 | 30 | 28 | 38 | 0 | 0 | 0 |
| 10/28/2000 | 758 | NA | NA | NA | NA | NA | 89 | 81 | 70 | 85 | 73 | 77 | 30 | 29 | 52 | 26 | 28 | 33 | 30 | 28 | 26 | 0 | 0 | 0 |
| 11/4/2000 | 750 | NA | NA | NA | NA | NA | 77 | 78 | 73 | 86 | 73 | 77 | 30 | 31 | 49 | 28 | 27 | 33 | 30 | 26 | 32 | 0 | 0 | 0 |
| 11/11/2000 | 753 | NA | NA | NA | NA | NA | 85 | 75 | 73 | 86 | 71 | 76 | 34 | 40 | 52 | 32 | 38 | 30 | 29 | 20 | 10 | 0 | 1 | 0 |
| 11/18/2000 | 729 | NA | NA | NA | NA | NA | 0 | 91 | 98 | 89 | 85 | 80 | 86 | 86 | 88 | 22 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11/25/2000 | 729 | NA | NA | NA | NA | NA | 0 | 91 | 98 | 89 | 85 | 80 | 86 | 86 | 88 | 22 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12/2/2000 | 730 | NA | NA | NA | NA | NA | 0 | 90 | 85 | 89 | 79 | 76 | 79 | 69 | 72 | 41 | 23 | 9 | 7 | 8 | 4 | 0 | 0 | 0 |
| 12/9/2000 | 743 | NA | NA | NA | NA | NA | 0 | 88 | 91 | 88 | 84 | 80 | 92 | 57 | 73 | 48 | 32 | 6 | 3 | 1 | 1 | 0 | 0 | 0 |
| 12/16/2000 | 726 | NA | NA | NA | NA | NA | 52 | 73 | 60 | 60 | 69 | 82 | 55 | 44 | 51 | 39 | 28 | 39 | 23 | 28 | 21 | 0 | 0 | 0 |
| 12/23/2000 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 12/30/2000 | 732 | NA | NA | NA | NA | NA | 0 | 79 | 79 | 79 | 79 | 78 | 11 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 11 | 67 | 70 | 69 |
| **Average** | 749 | NA | NA | NA | NA | NA | 48 | 82 | 86 | 77 | 77 | 79 | 41 | 40 | 44 | 27 | 26 | 27 | 22 | 25 | 29 | 5 | 10 | 4 |
| **Percentage of Design** | 94 | NA | NA | NA | NA | NA | 64 | 109 | 115 | 103 | 102 | 105 | 410 | 266 | 292 | 178 | 173 | 183 | 147 | 166 | 267 | 8 | 13 | 5 |

Data Source: Jacobs Engineering Group Inc., January - December 2000, Operations Status Reports

NA = not applicable. These wells were taken off-line under modeling scenario 24 (see Section 4.0 of text).

(1) Due to small-scale inaccuracies of the electronic flow rate meters, the recorded extraction flow rates may not equal the recorded reinjection flow rates.

(2) (32,0)--(Design rates prior to 02 June 2000, Design rates subsequent to 02 June 2000). 02 June 2000 represents implementation of modeling scenario 24.

(3) Extraction wells 90EW0006 and 90EW0010 were taken off-line on 02 June 2000. Model scenario 24 extraction rates were used as design rates after 02 June 2000.

(4) Reinjection wells 90RIW0005 through 90RIW0009 were taken off-line on 25 July 2000. Model scenario 24 reinjection flow rates were used as design rates after 25 July 2000.

(5) All downtime due to routine or non-routine operations and maintenance activities is included in the average flow rates.

(6) During the period when the flow rate meters at reinjection wells 90RIW0005 and 90RIW0006 (01 January 2000 to 28 April 2000) were inoperable, the difference between extraction and reinjection rates was assumed to be equal between the two reinjection wells. There was no interruption in the operation of these reinjection wells.

(7) The electronic flow rate meters were repaired and electronic flow rates were restored at reinjection wells 90RIW0005 and 90RIW0006 during the week of 05 May 2000.

(8) Due to software upgrades at the FS-12 treatment plant, flow rate data were unavailable for 13 December to 21 December 2000. The week ending 16 December 2000 reflects data from 10 December to 12 December 2000. The week ending 31 December 2000 includes data from 28 December to 31 December 2000.

(9) All flow rates are in gallons per minute.

(10) Due to communications problems with the electronic flow rate meters, flow rate data were unavailable for 22 December to 28 December 2000.

# Table 4-2
# FS-12 Treatment Plant Analytical Results
# January - December 2000

| Date | Time | Sampling Port | Sample Location [a] | Laboratory Analyses | | | | | | | Field Parameters | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Benz [b] (µg/L) | EDB [b,c] (µg/L) | TDS (mg/L) | TSS (mg/L) | TOC (mg/L) | Fe Total (µg/L) | Mn Total (µg/L) | pH (std) | Temp (°C) | DO (mg/L) | ORP (mV) | SpC (µS/cm) | Turb[e] (NTU) |
| 1/5/2000 | 10:55 | 90PLT01001 | Influent | ND | **5.76** | **26** | **6** | **0.38 J** | ND | **27.2** | 6.08 | 10.15 | 9.00 | 315.6 | 68 | -0.2 |
| 1/5/2000 | 11:25 | 90PLT01024 | Post-101B (lead) | ND | **0.921** | NS | NS | NS | NS | NS | 6.59 | 10.28 | 10.42 | 374.4 | 78 | -0.1 |
| 1/5/2000 | 11:33 | 90PLT01023 | Post-101A (lag) | NS | ND | NS | NS | NS | NS | NS | 6.54 | 10.29 | 9.96 | 365.4 | 78 | -0.1 |
| 1/5/2000 | 11:38 | 90PLT01042 | Post-103B (lead) | ND | **0.943** | NS | NS | NS | NS | NS | 6.53 | 10.31 | 9.83 | 354.2 | 78 | -0.2 |
| 1/5/2000 | 11:46 | 90PLT01041 | Post-103A (lag) | NS | ND | NS | NS | NS | NS | NS | 6.53 | 10.27 | 9.39 | 346.7 | 78 | -0.1 |
| 1/5/2000 | 12:00 | 90PLT01053 | Effluent | ND | ND | **15** | **7** | ND | ND | **4.3 J** | 6.51 | 10.43 | 9.74 | 230.6 | 77 | 0.9 |
| | | | | | | | | | | | | | | | | |
| 2/4/2000 | 11:55 | 90PLT01001 | Influent | ND | **5.22** | **46** | **10** | **0.28 J** | ND | **4.0 J** | 6.13 | 9.79 | 9.57 | 360.0 | 75 | -0.1 |
| 2/4/2000 | 12:11 | 90PLT01024 | Post-101B (lead) | ND | **0.929** | NS | NS | NS | NS | NS | 6.55 | 9.91 | 10.56 | 409.9 | 73 | -0.1 |
| 2/4/2000 | 12:35 | 90PLT01023 | Post-101A (lag) | NS | ND | NS | NS | NS | NS | NS | 6.54 | 9.78 | 10.86 | 408.5 | 42 | 0.0 |
| 2/4/2000 | 12:42 | 90PLT01042 | Post-103B (lead) | ND | **1.34** | NS | NS | NS | NS | NS | 6.45 | 10.08 | 10.17 | 412.3 | 73 | -0.1 |
| 2/4/2000 | 13:07 | 90PLT01041 | Post-103A (lag) | NS | ND | NS | NS | NS | NS | NS | 6.40 | 10.13 | 9.51 | 414.3 | 73 | -0.2 |
| 2/4/2000 | 13:27 | 90PLT01053 | Effluent | ND | ND | **40** | **10** | ND | **311** | **4.0 J** | 6.44 | 10.27 | 10.21 | 320.3 | 72 | 0.2 |
| | | | | | | | | | | | | | | | | |
| 3/6/2000 | 10:00 | 90PLT01001 | Influent | ND | **4.09** | **29** | ND | ND | ND | **25.8** | 6.12 | 10.08 | 9.26 | 354.9 | 67 | 0.5 |
| 3/6/2000 | 10:20 | 90PLT01024 | Post-101B (lead) | ND | **1.14** | NS | NS | NS | NS | NS | 6.58 | 9.67 | 10.60 | 390.1 | 76 | -0.4 |
| 3/6/2000 | 10:15 | 90PLT01023 | Post-101A (lag) | NS | **0.052** | NS | NS | NS | NS | NS | 6.55 | 10.14 | 10.38 | 389.1 | 75 | -0.3 |
| 3/6/2000 | 10:40 | 90PLT01042 | Post-103B (lead) | ND | **1.53** | NS | NS | NS | NS | NS | 6.57 | 9.80 | 10.39 | 390.7 | 76 | -0.4 |
| 3/6/2000 | 10:50 | 90PLT01041 | Post-103A (lag) | NS | ND | NS | NS | NS | NS | NS | 6.49 | 9.89 | 9.60 | 392.5 | 75 | -0.2 |
| 3/6/2000 | 11:05 | 90PLT01053 | Effluent | ND | ND | **30** | ND | ND | ND | **3.3** | 6.55 | 10.14 | 10.45 | 277.0 | 75 | 0.4 |
| **Carbon was replaced in the lead vessel (101B) of the 101 train on 31 March 2000 after breakthrough was detected in the lag vessel (101A). Following carbon replacement, vessel 101A was aligned as lead and 101B as lag.** | | | | | | | | | | | | | | | | |
| 4/3/2000 | 9:45 | 90PLT01001 | Influent | ND | **4.47** | ND | ND | ND | ND | **24.8** | 6.20 | 10.37 | 9.73 | 319.0 | 68 | -0.1 |
| 4/3/2000 | 10:05 | 90PLT01023 | Post-101A (lead) | ND | **0.04** | NS | NS | NS | NS | NS | 6.77 | 10.46 | 10.89 | 379.4 | 81 | -0.2 |
| 4/3/2000 | 10:00 | 90PLT01024 | Post-101B (lag) | NS | ND | NS | NS | NS | NS | NS | 7.12 | 10.48 | 9.76 | 368.7 | 78 | -0.3 |
| 4/3/2000 | 10:35 | 90PLT01042 | Post-103B (lead) | ND | **1.85** | NS | NS | NS | NS | NS | 6.67 | 10.52 | 10.33 | 377.8 | 61 | -0.3 |
| 4/3/2000 | 10:55 | 90PLT01041 | Post-103A (lag) | NS | ND | NS | NS | NS | NS | NS | 6.65 | 10.48 | 10.30 | 378.3 | 79 | -0.3 |
| 4/3/2000 | 11:00 | 90PLT01053 | Effluent | ND | ND | ND | ND | ND | ND | **1.8 J** | 6.81 | 10.62 | 10.12 | 364.7 | 79 | -0.3 |
| | | | | | | | | | | | | | | | | |
| 5/1/2000 | 13:40 | 90PLT01001 | Influent | ND | **3.7** | **30** | ND | ND | ND | **25.3** | 6.34 | 10.46 | 10.95 | 352.8 | 77 | 0.5 |
| 5/1/2000 | 13:56 | 90PLT01023 | Post-101A (lead) | ND | **0.159** | NS | NS | NS | NS | NS | 6.51 | 10.57 | 10.66 | 316.2 | 78 | 0.1 |
| 5/1/2000 | 14:01 | 90PLT01024 | Post-101B (lag) | NS | ND | NS | NS | NS | NS | NS | 6.54 | 10.45 | 9.97 | 394.6 | 78 | -0.2 |
| 5/1/2000 | 14:21 | 90PLT01042 | Post-103B (lead) | NS | **1.77** | NS | NS | NS | NS | NS | 6.60 | 10.51 | 11.72 | 385.5 | 77 | -0.1 |
| 5/1/2000 | 14:26 | 90PLT01041 | Post-103A (lag) | ND | **0.234** | NS | NS | NS | NS | NS | 6.42 | 10.51 | 9.96 | 319.8 | 78 | 0.1 |
| 5/1/2000 | 14:10 | 90PLT01033 | Post-102B (lead polish) | NS | ND | NS | NS | NS | NS | NS | 6.45 | 10.59 | 9.37 | 314.4 | 78 | 0.1 |

## Table 4-2
## FS-12 Treatment Plant Analytical Results
## January - December 2000

| Date | Time | Sampling Port | Sample Location (a) | Laboratory Analyses | | | | | | | Field Parameters | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Benz (b) (µg/L) | EDB (b,c) (µg/L) | TDS (mg/L) | TSS (mg/L) | TOC (mg/L) | Fe Total (µg/L) | Mn Total (µg/L) | pH (std) | Temp (°C) | DO (mg/L) | ORP (mV) | SpC (µS/cm) | Turb (e) (NTU) |
| 5/1/2000 | 14:35 | 90PLT01053 | Effluent | ND | ND | **40** | ND | ND | ND | **2.3 J** | 6.56 | 10.73 | 11.30 | 207.9 | 77 | 0.1 |
| **Carbon was replaced in the lead vessel (103B) of the 103 train on 03 May 2000 after breakthrough was detected in the lag vessel (103A). Following carbon replacement, vessel 103A was aligned as lead and 103B as lag.** | | | | | | | | | | | | | | | | |
| 6/1/2000 | 10:30 | 90PLT01001 | Influent | ND | **3.1** | **40** | ND | **1** | ND | **33.4** | 5.93 | 10.81 | 8.90 | 336.4 | 67 | 0.0 |
| 6/2/2000 (d) | 15:20 | 90PLT01024 | Post-101B (lag) | ND | ND | NS | NS | NS | NS | NS | 7.02 | 11.37 | 9.66 | 349.9 | 80 | 0.3 |
| 6/2/2000 (d) | 15:28 | 90PLT01042 | Post-103B (lag) | ND | ND | NS | NS | NS | NS | NS | 6.69 | 10.93 | 9.37 | 366.3 | 77 | 0.2 |
| 6/1/2000 | 11:29 | 90PLT01053 | Effluent | ND | ND | **50** | ND | **1** | ND | **3.7 J** | 6.29 | 11.26 | 9.95 | 346.2 | 76 | 0.1 |
| | | | | | | | | | | | | | | | | |
| 6/29/2000 | 11:15 | 90PLT01001 | Influent | ND | **4.99** | **40** | ND | ND | ND | **23.0** | 6.02 | 10.71 | 9.34 | 362.8 | 67 | 1.4 |
| 6/29/2000 | 11:40 | 90PLT01024 | Post-101B (lag) | ND | ND | NS | NS | NS | NS | NS | 6.20 | 10.79 | 10.16 | 397.9 | 77 | 0.0 |
| 6/29/2000 | 11:55 | 90PLT01042 | Post-103B (lag) | ND | ND | NS | NS | NS | NS | NS | 6.19 | 10.79 | 10.43 | 394.8 | 77 | 0.0 |
| 6/29/2000 | 12:15 | 90PLT01053 | Effluent | ND | ND | **40** | ND | ND | ND | **2.2 J** | 6.18 | 11.07 | 10.43 | 382.4 | 77 | 0.0 |
| | | | | | | | | | | | | | | | | |
| 7/31/2000 | 10:35 | 90PLT01001 | Influent | ND | **3.15** | **40** | ND | ND | ND | **20.0** | 6.42 | 10.70 | 9.49 | 363.9 | 72 | 5.8 |
| 7/31/2000 | 11:15 | 90PLT01024 | Post-101B (lag) | ND | 0.008 J | NS | NS | NS | NS | NS | 6.32 | 10.83 | 9.38 | 386.2 | 79 | 0.1 |
| 7/31/2000 | 11:25 | 90PLT01042 | Post-103B (lag) | ND | 0.009 J | NS | NS | NS | NS | NS | 6.31 | 10.80 | 9.83 | 387.3 | 79 | 0.0 |
| 7/31/2000 | 11:40 | 90PLT01053 | Effluent | ND | ND | **60** | ND | ND | ND | ND | 6.28 | 11.05 | 9.95 | 364.2 | 79 | 0.1 |
| **Carbon was replaced in both lead vessels (101A and 103A) on 16 August 2000 and 18 August 2000, respectively, after breakthrough was detected in both lag vessels (101B and 103B). Following carbon replacement, vessels 101B and 103B were aligned as lead and 101A and 103A as lag.** | | | | | | | | | | | | | | | | |
| 9/5/2000 | 13:20 | 90PLT01001 | Influent | ND | **3.86** | **50** | ND | **2** | ND | **18.7** | 6.56 | 10.92 | 9.43 | 352.2 | 70 | -0.1 |
| 9/5/2000 | 14:00 | 90PLT01023 | Post-101A (lag) | ND | ND | NS | NS | NS | NS | NS | 7.20 | 10.80 | 9.51 | 313.9 | 78 | -0.2 |
| 9/5/2000 | 14:20 | 90PLT01041 | Post-103A (lag) | ND | ND | NS | NS | NS | NS | NS | 6.78 | 10.81 | 9.10 | 314.8 | 77 | -0.1 |
| 9/5/2000 | 14:30 | 90PLT01033 | Post-102B (lead polish) | ND | ND | NS | NS | NS | NS | NS | 6.68 | 10.81 | 8.69 | 325.6 | 77 | -0.1 |
| 9/5/2000 | 14:50 | 90PLT01053 | Effluent | ND | ND | **60** | ND | ND | ND | **2.1 J** | 6.54 | 11.01 | 10.01 | 298.1 | 77 | -0.1 |
| | | | | | | | | | | | | | | | | |
| 9/28/2000 | 14:00 | 90PLT01001 | Influent | ND | **3.61** | **30** | ND | ND | ND | **17.5** | 6.59 | 10.84 | 9.11 | 338.7 | 70 | 0.5 |
| 9/28/2000 | 14:30 | 90PLT01023 | Post-101A (lag) | ND | ND | NS | NS | NS | NS | NS | 6.45 | 10.93 | 9.10 | 344.2 | 79 | 0.1 |
| 9/28/2000 | 14:45 | 90PLT01041 | Post-103A (lag) | ND | ND | NS | NS | NS | NS | NS | 6.37 | 10.85 | 8.71 | 348.7 | 78 | 0.2 |
| 9/28/2000 | 15:05 | 90PLT01053 | Effluent | ND | ND | **40** | ND | ND | ND | **3.4 J** | 6.41 | 11.18 | 10.00 | 344.9 | 79 | 0.2 |
| | | | | | | | | | | | | | | | | |
| 10/31/2000 | 11:15 | 90PLT01001 | Influent | ND | **2.96** | **20** | **4.38 J** | ND | ND | **17.6** | 5.96 | 10.41 | 9.36 | 364.8 | 67 | 0.0 |
| 10/31/2000 | 12:30 | 90PLT01023 | Post-101A (lag) | ND | ND | NS | NS | NS | NS | NS | 6.15 | 10.57 | 9.12 | 396.3 | 78 | 0.0 |
| 10/31/2000 | 12:50 | 90PLT01041 | Post-103A (lag) | ND | ND | NS | NS | NS | NS | NS | 6.10 | 10.57 | 8.31 | 398.6 | 78 | 0.0 |
| 10/31/2000 | 12:55 | 90PLT01053 | Effluent | ND | ND | **30** | ND | ND | ND | **3.3 J** | 6.11 | 10.73 | 9.10 | 398.6 | 78 | 0.0 |
| | | | | | | | | | | | | | | | | |
| 11/27/2000 | 12:00 | 90PLT01001 | Influent | ND | **3.22** | **40** | ND | ND | ND | **17.8** | 6.23 | 10.75 | 8.80 | 420.1 | 68 | 0.3 |

## Table 4-2
## FS-12 Treatment Plant Analytical Results
## January - December 2000

| Date | Time | Sampling Port | Sample Location [(a)] | Laboratory Analyses | | | | | | | Field Parameters | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Benz [(b)] (µg/L) | EDB [(b,c)] (µg/L) | TDS (mg/L) | TSS (mg/L) | TOC (mg/L) | $Fe^{Total}$ (µg/L) | $Mn^{Total}$ (µg/L) | pH (std) | Temp (°C) | DO (mg/L) | ORP (mV) | SpC (µS/cm) | Turb[(e)] (NTU) |
| 11/27/2000 | 12:12 | 90PLT01023 | Post-101A (lag) | ND | ND | NS | NS | NS | NS | NS | 7.46 | 10.61 | 8.99 | 390.7 | 76 | 0.0 |
| 11/27/2000 | 12:14 | 90PLT01041 | Post-103A (lag) | ND | ND | NS | NS | NS | NS | NS | 7.06 | 10.59 | 9.22 | 410.2 | 75 | -0.1 |
| 11/27/2000 | 12:20 | 90PLT01053 | Effluent | ND | ND | **40** | ND | ND | ND | ND | 6.47 | 10.82 | 9.79 | 416.7 | 75 | 0.3 |

Data Source: AFCEE, 19 March 2001, MMR-AFCEE Data Warehouse

Note:

Benz = benzene
°C = degrees Celsius
DO = dissolved oxygen
EDB = ethylene dibromide
$Fe^{Total}$ = total iron
J = estimated value
mg/L = milligrams per liter
$Mn^{Total}$ = total manganese
mV = millivolts
ND = not detected above the instrument detection limit
NS = not sampled
NTU = nephelometric turbidity units
ORP = oxidation-reduction potential
SpC = specific conductivity
std = standard units
TDS = total dissolved solids
Temp = temperature
TOC = total organic carbon
TSS = total suspended solids
Turb = turbidity
YSI = Yellow Springs Instrument, Inc. water quality meter
µg/L = micrograms per liter
µS/cm = microsiemens per centimeter

(a) The carbon vessels in the lag position were sampled to determine when breakthrough occurred, which triggered a carbon exchange of the lead vessels. The carbon vessels in the lead position were sampled until May 2000 to characterize the carbon breakthrough curve for EDB in those vessels.

(b) The detection limit for benzene ranged from 0.099 to 0.354 µg/L, and the reporting limit was 1 µg/L. The detection limit and reporting limit for EDB ranged from 0.0022 to 0.2 µg/L and 0.01 to 0.4 µg/L, respectively. The detection limit and reporting limit varied if dilutions were performed during analysis.

(c) EDB was analyzed by method E504.

(d) Samples were mistakenly collected from the lead vessels instead of the lag vessels on 01 June 2000. As a result, samples were collected from the lag vessels on 02 June 2000.

(e) Negative turbidity measurements indicate instrument drift.

The accuracy of the YSI readings are as follows: temperature (+/- 0.15%), specific conductivity (+/- 0.5% of reading plus 1 µS/cm), DO (for instrument readings 0-20 mg/L, +/- 0.2 mg/L or for instrument readings 20-50 mg/L, +/- 0.6 mg/L), pH (+/- 0.2 units), ORP (+/- 20 mV), turbidity (the greater of +/- 5% of reading or +/- 2 NTU).

# Table 4-3
# FS-12 Treatment Plant
# Contaminant Mass Removal

| Month | EDB Monthly (pounds) | EDB Cumulative (pounds) | Benzene Monthly (pounds) | Benzene Cumulative (pounds) |
|---|---|---|---|---|
| January | 1.6 | 108.6 | 0.0 | 71.7 |
| February | 1.4 | 110.0 | 0.0 | 71.7 |
| March | 1.2 | 111.1 | 0.0 | 71.7 |
| April | 1.3 | 112.4 | 0.0 | 71.7 |
| May | 1.0 | 113.4 | 0.0 | 71.7 |
| June | 0.9 | 114.3 | 0.0 | 71.7 |
| July | 1.5 | 115.8 | 0.0 | 71.7 |
| August | 0.9 | 116.7 | 0.0 | 71.7 |
| September | 1.0 | 117.7 | 0.0 | 71.7 |
| October | 1.0 | 118.7 | 0.0 | 71.7 |
| November | 0.8 | 119.5 | 0.0 | 71.7 |
| December | 0.9 | 120.4 | 0.0 | 71.7 |

Data Source: Jacobs Engineering Group Inc., January 2000 - December 2000, Operations Status Reports

EDB = ethylene dibromide

Mass removal estimate was based on influent concentrations of benzene and EDB collected monthly and the average monthly flow rate into the treatment plant.

**Table 4-4**
**FS-12 Wellfield Maintenance**

| Location | Date of Inspection | Observation/Activity | Findings and Recommendations |
|---|---|---|---|
| **Extraction Wells** | | | |
| 90EW0006 | September 2000 | Biological activity tests, specific capacity test, and pump performance evaluation | Biological Activity: Positive reaction(s)<br>Specific Capacity: Decreased<br>Pump Performance: Satisfactory<br>Recommendation: No further inspection or maintenance required. Reinspect during next annual cycle. |
| 90EW0007 | September 2000 | Biological activity tests, specific capacity test, and pump performance evaluation | Biological Activity: Positive reaction(s)<br>Specific Capacity: Apparent increase (suspect data)<br>Pump Performance: Unsatisfactory<br>Recommendation: Conduct maintenance. |
| 90EW0008 | September 2000 | Biological activity tests, specific capacity test, and pump performance evaluation | Biological Activity: Positive reaction(s)<br>Specific Capacity: Unchanged<br>Pump Performance: Unsatisfactory<br>Recommendation: Conduct maintenance. |
| 90EW0009 | September 2000 | Biological activity tests, specific capacity test, and pump performance evaluation | Biological Activity: Positive reaction(s)<br>Specific Capacity: Decreased<br>Pump Performance: Unsatisfactory<br>Recommendation: Conduct maintenance. |
| 90EW0010 | September 2000 | Biological activity tests, specific capacity test, and pump performance evaluation | Biological Activity: Positive reaction(s)<br>Specific Capacity: Decreased<br>Pump Performance: Marginal<br>Recommendation: Reinspect during first quarter 2001. |
| 90EW0011 | September 2000 | Biological activity tests, specific capacity test, and pump performance evaluation | Biological Activity: Positive reaction(s)<br>Specific Capacity: Decreased<br>Pump Performance: Unsatisfactory<br>Recommendation: Conduct maintenance. |
| 90EW0012 | September 2000 | Biological activity tests, specific capacity test, and pump performance evaluation | Biological Activity: Positive reaction(s)<br>Specific Capacity: Decreased<br>Pump Performance: Unsatisfactory<br>Recommendation: Conduct maintenance. |
| 90EW0013 | September 2000 | Biological activity tests, specific capacity test, and pump performance evaluation | Biological Activity: Positive reaction(s)<br>Specific Capacity: Decreased<br>Pump Performance: Marginal<br>Recommendation: Reinspect during first quarter 2001. |
| 90EW0014 | September 2000 | Biological activity tests, specific capacity test, and pump performance evaluation | Biological Activity: Positive reaction(s)<br>Specific Capacity: Apparent increase (suspect data)<br>Pump Performance: Unsatisfactory<br>Recommendation: Conduct maintenance. |
| 90EW0015 | September 2000 | Biological activity tests, specific capacity test, and pump performance evaluation | Biological Activity: Positive reaction(s)<br>Specific Capacity: Apparent increase (suspect data)<br>Pump Performance: Unsatisfactory<br>Recommendation: Conduct maintenance. |
| 90EW0016 | September 2000 | Biological activity tests, specific capacity test, and pump performance evaluation | Biological Activity: Positive reaction(s)<br>Specific Capacity: Apparent increase (suspect data)<br>Pump Performance: Unsatisfactory<br>Recommendation: Conduct maintenance. |
| 90EW0017 | September 2000 | Biological activity tests, specific capacity test, and pump performance evaluation | Biological Activity: Positive reaction(s)<br>Specific Capacity: Apparent increase (suspect data)<br>Pump Performance: Marginal<br>Recommendation: Reinspect during first quarter 2001 |

**Table 4-4**
**FS-12 Wellfield Maintenance**

| Location | Date of Inspection | Observation/Activity | Findings and Recommendations |
|---|---|---|---|
| 90EW0018 | September 2000 | Biological activity tests, specific capacity test, and pump performance evaluation | Biological Activity: Positive reaction(s)<br>Specific Capacity: Increased<br>Pump Performance: Satisfactory<br>Recommendation: No further inspection or maintenance required. Reinspect during next annual cycle. |
| 90EW0019 | September 2000 | Biological activity tests, specific capacity test, and pump performance evaluation | Biological Activity: Positive reaction(s)<br>Specific Capacity: Decreased<br>Pump Performance: Marginal<br>Recommendation: Reinspect during first quarter 2001. |
| 90EW0020 | September 2000 | Biological activity tests, specific capacity test, and pump performance evaluation | Biological Activity: Positive reaction(s)<br>Specific Capacity: Apparent increase (suspect data)<br>Pump Performance: Satisfactory<br>Recommendation: Reinspect during next annual cycle. |
| 90EW0021 | September 2000 | Biological activity tests, specific capacity test, and pump performance evaluation | Biological Activity: Positive reaction(s)<br>Specific Capacity: Decreased<br>Pump Performance: Satisfactory<br>Recommendation: Reinspect during first quarter 2001. |
| 90EW0022 | September 2000 | Biological activity tests, specific capacity test, and pump performance evaluation | Biological Activity: Positive reaction(s)<br>Specific Capacity: Apparent increase (suspect data)<br>Pump Performance: Marginal<br>Recommendation: Reinspect during first quarter 2001. |
| 90EW0023 | September 2000 | Biological activity tests, specific capacity test, and pump performance evaluation | Biological Activity: Positive reaction(s)<br>Specific Capacity: Apparent increase (suspect data)<br>Pump Performance: Satisfactory<br>Recommendation: Reinspect during next annual cycle. |
| 90EW0024 | September 2000 | Biological activity tests, specific capacity test, and pump performance evaluation | Biological Activity: Positive reaction(s)<br>Specific Capacity: Apparent increase (suspect data)<br>Pump Performance: Satisfactory<br>Recommendation: Reinspect during next annual cycle. |
| 90EW0025 | September 2000 | Biological activity tests, specific capacity test, and pump performance evaluation | Biological Activity: Positive reaction(s)<br>Specific Capacity: Decreased<br>Pump Performance: Satisfactory<br>Recommendation: Reinspect during next annual cycle. |
| 90EW0026 | September 2000 | Biological activity tests, specific capacity test, and pump performance evaluation | Biological Activity: Positive reaction(s)<br>Specific Capacity: Decreased<br>Pump Performance: Satisfactory<br>Recommendation: Retest as soon as possible. |
| 90EW0027 | September 2000 | Biological activity tests, specific capacity test, and pump performance evaluation | Biological Activity: Positive reaction(s)<br>Specific Capacity: Decreased<br>Pump Performance: Satisfactory<br>Recommendation: Conduct maintenance. |
| 90EW0028 | September 2000 | Biological activity tests, specific capacity test, and pump performance evaluation | Biological Activity: Positive reaction(s)<br>Specific Capacity: Apparent increase (suspect data)<br>Pump Performance: Satisfactory<br>Recommendation: Reinspect during next annual cycle. |
| 90EW0029 | September 2000 | Biological activity tests, specific capacity test, and pump performance evaluation | Biological Activity: Positive reaction(s)<br>Specific Capacity: Apparent increase (suspect data)<br>Pump Performance: Satisfactory<br>Recommendation: Reinspect during next annual cycle. |
| 90EW0030 | September 2000 | Biological activity tests, specific capacity test, and pump performance evaluation | Biological Activity: Positive reaction(s)<br>Specific Capacity: Apparent increase (suspect data)<br>Pump Performance: Satisfactory<br>Recommendation: Reinspect during next annual cycle. |
| **Reinjection Wells** | | | |
| 90RIW0005 | NA | Due to the current wellfield configuration, this reinjection well was not operating at the time of inspection. | NA |

**Table 4-4**
**FS-12 Wellfield Maintenance**

| Location | Date of Inspection | Observation/Activity | Findings and Recommendations |
|---|---|---|---|
| 90RIW0006 | NA | Due to the current wellfield configuration, this reinjection well was not operating at the time of inspection. | NA |
| 90RIW0007 | NA | Due to the current wellfield configuration, this reinjection well was not operating at the time of inspection. | NA |
| 90RIW0008 | NA | Due to the current wellfield configuration, this reinjection well was not operating at the time of inspection. | NA |
| 90RIW0009 | NA | Due to the current wellfield configuration, this reinjection well was not operating at the time of inspection. | NA |
| 90RIW0010 | September/ October 2000 | Specific capacity test | Specific Capacity: Satisfactory<br>Recommendation: No further testing required.<br>Reinspect within 12 months. Well will be converted into an extraction well in June 2001. |
| 90RIW0013 | September/ October 2000 | Specific capacity test | Specific Capacity: Satisfactory<br>Recommendation: No further testing required.<br>Reinspect within 12 months. |
| 90RIW0014 | September/ October 2000 | Specific capacity test | Specific Capacity: Satisfactory<br>Recommendation: No further testing required.<br>Reinspect within 12 months. |
| 90RIW0015 | September/ October 2000 | Specific capacity test | Specific Capacity: Satisfactory<br>Recommendation: No further testing required.<br>Reinspect within 12 months. |
| 90RIW0016 | September/ October 2000 | Specific capacity test | Specific Capacity: Satisfactory<br>Recommendation: No further testing required.<br>Reinspect within 12 months. |
| 90RIW0017 | September/ October 2000 | Specific capacity test | Specific Capacity: Satisfactory<br>Recommendation: No further testing required.<br>Reinspect within 12 months. |
| 90RIW0018 | September/ October 2000 | Specific capacity test | Specific Capacity: Satisfactory<br>Recommendation: No further testing required.<br>Reinspect within 12 months. |
| 90RIW0020 | September/ October 2000 | Specific capacity test | Specific Capacity: Satisfactory<br>Recommendation: No further testing required.<br>Reinspect within 12 months. |
| 90RIW0021 | September/ October 2000 | Specific capacity test | Specific Capacity: Satisfactory<br>Recommendation: No further testing required.<br>Reinspect within 12 months. |
| 90RIW0022 | September/ October 2000 | Specific capacity test | Specific Capacity: Satisfactory<br>Recommendation: No further testing required.<br>Reinspect within 12 months. |
| 90RIW0023 | September/ October 2000 | Specific capacity test | Specific Capacity: Satisfactory<br>Recommendation: No further testing required.<br>Reinspect within 12 months. |
| 90RIW0024 | September/ October 2000 | Specific capacity test | Specific Capacity: Satisfactory<br>Recommendation: No further testing required.<br>Reinspect within 12 months. |
| 90RIW0025 | September/ October 2000 | Specific capacity test | Specific Capacity: Satisfactory<br>Recommendation: No further testing required.<br>Reinspect within 12 months. |
| 90RIW0026 | September/ October 2000 | Specific capacity test | Specific Capacity: Satisfactory<br>Recommendation: No further testing required.<br>Reinspect within 12 months. |
| 90RIW0027 | September/ October 2000 | Specific capacity test | Specific Capacity: Satisfactory<br>Recommendation: No further testing required.<br>Reinspect within 12 months. |
| 90RIW0028 | September/ October 2000 | Specific capacity test | Specific Capacity: Satisfactory<br>Recommendation: No further testing required.<br>Reinspect within 12 months. |

**Table 4-4**
**FS-12 Wellfield Maintenance**

| Location | Date of Inspection | Observation/Activity | Findings and Recommendations |
|---|---|---|---|
| 90RIW0029 | September/ October 2000 | Specific capacity test | Specific Capacity: Satisfactory<br>Recommendation: No further testing required.<br>Reinspect within 12 months. |
| 90RIW0030 | September/ October 2000 | Due to the current wellfield configuration, this reinjection well was not operating at the time of inspection. | Inspect in spring 2001. |

Data Source: Jacobs Engineering Group Inc., 24 January 2001, Project Note AFC-J23-35U40003-05-0002
Data Source: Jacobs Engineering Group Inc., 06 February 2001, Project Note AFC-J23-35U40003-05-0001
Data Source: Jacobs Engineering Group Inc., 07 February 2001, Project Note AFC-J23-35U40003-05-0003

NA = not applicable

**Table 4-5**
**Summary of Field and Analytical Data for Direct Impact Monitoring**
**January 2000 - 02 January 2001**

| | | | Laboratory Analyses | | | | | | | | | YSI - Water Quality Meter | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Well Identification | Date Sampled | Sampling Location | Alkalinity (mg/L) | Dissolved Organic Carbon (mg/L) | Total Nitrogen (µg/L) | Ammonia (µg/L) | Nitrate (µg/L) | Nitrite (µg/L) | Total Phosphorus (µg/L) | Orthophosphate (µg/L) | Total Organic Carbon (mg/L) | Temp (°C) | SpC (µS/cm) | DO (mg/L) | pH (std) | ORP (mV) | Turb (NTU) |
| 90MW0020 | 31-Jan-00 | Upgradient | 26.1 | ND | 153 | 118 | 13 | 1.4 J | 71.6 | 66.5 | ND | 11.04 | 79 | 0.44 | 6.05 | -15.7 | 1.2 |
| | 01-Mar-00 | Upgradient | 23.4 | 1.6 | 182 | 120 | 14.1 | 1.5 J | 78.7 | 71.3 | 1 | 11.84 | 82 | 0.64 | 6.06 | 4.3 | 0.9 |
| | 31-Mar-00 | Upgradient | 24.1 | 1.1 | 126 | 77.3 | 11.8 | 2.5 J | 70.7 | 63.6 | 1.1 | 12.53 | 88 | 0.53 | 6 | -2.8 | 0.4 |
| | 03-May-00 | Upgradient | 25.6 | ND | 152 | 137 | ND | 3.3 | 80.7 | 72.6 | ND | 12.61 | 80 | 0.57 | 6.05 | -92.9 | 0.3 |
| | 30-May-00 | Upgradient | 27 | 1.6 | 486 | 293 | 11.3 | 3.5 | 109 | 99.2 | 1.5 | 12.48 | 80 | 1.48 | 6.09 | 6.2 | 4.9 |
| 90MW0070 | 01-Mar-00 | Upgradient | ND | ND | 7 | ND | 271 | ND | ND | NA | 0.51 J | 11.95 | 68 | 9.51 | 5.33 | 436.3 | 1.2 |
| | 31-Mar-00 | Upgradient | 6.6 | 1.1 | 493 | 66.8 | 397 | ND | 6.5 | 4.3 | 0.5 J | 12.35 | 78 | 10.71 | 5.27 | 274.6 | 0.9 |
| | 03-May-00 | Upgradient | ND | 1 | 523 | 14.6 | 532 | 0.6 J | 5.7 | 4.1 | ND | 12.95 | 69 | 10.58 | 5.31 | 311.2 | 0.6 |
| | 30-May-00 | Upgradient | 5.4 | 0.79 J | 725 | ND | 633 | 0.9 J | 5.3 | 4.4 | 0.62 J | 13.95 | 67 | 9.1 | 5.42 | 291.5 | 0.1 |
| 90PZ0205 | 31-Jan-00 | Upgradient | ND | ND | 182 | 28.6 | 118 | 0.2 J | 9.5 | 3.1 | ND | 9.14 | 60 | 7.21 | 4.87 | 273.6 | 0.7 |
| | 01-Mar-00 | Upgradient | ND | 1.7 | 150 | ND | 79.3 | ND | 5.8 | 2.2 | 1.8 | 9.23 | 62 | 5.65 | 5.06 | 410.1 | 1.3 |
| 90MP0059D | 26-Apr-00 | Upgradient | ND | 0.48 J | 53.5 | 7.8 J | 43.4 | ND | 11.6 | 10.3 | 0.44 J | 8.95 | 67 | 11.52 | 6.05 | 458.4 | 0.7 |
| | 31-May-00 | Upgradient | ND | ND | 159 | 7.6 J | 109 | ND | 30.7 | 28.1 | ND | 11.72 | 59 | 11.39 | 5.98 | 306.9 | 0.4 |
| 90PLT01001 | 30-Aug-00 | Influent | ND | 1.6 | 98.1 | 9.6 J | 67 | ND | 27.5 | 29.2 | 1.1 | 11.12 | 70 | 9.69 | 6.48 | 198.5 | 0.1 |
| | 26-Sep-00 | Influent | 12.7 | 0.66 J | 115 | ND | 58.8 | ND | 28.8 | 25.6 | ND | 10.7 | 105 | 9.39 | 6.41 | 276.1 | 0.4 |
| | 31-Oct-00 | Influent | 10 | 0.59 J | 53 | ND | 50.9 | ND | 30.6 | 26.4 | ND | 10.26 | 66 | 11.28 | 6.71 | 425 | 0.6 |
| | 30-Nov-00 | Influent | 10 | 0.498 J | 54.4 | ND | 63.1 | ND | 32.1 | 25.9 | ND | 10.4 | 75 | 9.05 | 7.15 | 370.3 | 0.5 |
| | 02-Jan-01 | Influent | ND | 0.52 J | 31.3 | ND | ND | ND | 31.9 | 26.2 | 0.47 J | 10.12 | 67 | 9.34 | 5.94 | 396.5 | 0 |
| 90PLT01053 | 31-Jan-00 | Effluent | 14.8 | 4.5 | 77.1 | ND | 67.5 | ND | 28.5 | 25.4 | ND | 10.27 | 72 | 10.21 | 6.38 | 339 | -0.1 |
| | 29-Feb-00 | Effluent | 18.5 | ND | 71.6 | ND | 70.8 | ND | 28.4 | 25.2 | ND | 10.71 | 81 | 9.79 | 6.63 | 359.2 | 3.2 |
| | 31-Mar-00* | Effluent | 17.6 | 1.4 | 231 | 239 | 77.7 | 1.9 J | 31.7 | 26.1 | 0.55 J | NM | NM | NM | NM | NM | NM |
| | 26-Apr-00 | Effluent | 26.8 | 0.44 J | 34.6 | ND | 33.3 | ND | 26.7 | 23.2 | ND | 10.32 | 77 | 10.31 | 6.29 | 447.9 | 0.8 |
| | 31-May-00 | Effluent | 13.6 | ND | 79.1 | 7.9 J | 54.9 | ND | 28.5 | 25.2 | ND | 12.8 | 84 | 11.68 | 6.49 | 254.3 | 0.1 |
| | 30-Jun-00 | Effluent | 15 | ND | 63.3 | ND | 64.6 J | ND | 30.2 | 24.3 | 0.67 J | 11.76 | 77 | 10.81 | 7.37 | 396.1 | -0.2 |
| | 25-Jul-00 | Effluent | 17.3 | 0.98 J | 79.8 | 6 J | 41.3 | ND | 30.7 | 27.6 | 0.56 J | 11.51 | 80 | 12.81 | 7.47 | 174.4 | 1.1 |
| | 30-Aug-00 | Effluent | 18.4 | 0.75 J | 48.1 | 5.7 J | 13.6 | ND | 17.3 | 18.5 | 0.75 J | 12.69 | 82 | 10.46 | 7.13 | 225.2 | 1.2 |
| | 26-Sep-00 | Effluent | 16.9 | ND | 89.1 | ND | 36.3 | ND | 23.5 | 20.8 | ND | 10.95 | 114 | 9.75 | 6.43 | 264.2 | 0.1 |
| | 31-Oct-00 | Effluent | 17.6 | ND | 60.8 | ND | 65.4 | ND | 27.9 | 24.8 | ND | 10.65 | 76 | 10.31 | 6.27 | 446.4 | 0.2 |
| | 30-Nov-00 | Effluent | 14.7 | ND | 62.3 | ND | 68.7 | ND | 30.5 | 26.5 | 0.43 | 10.76 | 79 | 9.5 | 6.64 | 359.6 | 1.7 |
| | 02-Jan-01 | Effluent | 15 | 0.7 J | 62.3 | ND | ND | ND | 30.4 | 27.1 | ND | 10.46 | 76 | 9.01 | 5.95 | 400.1 | 0 |

Data Source for YSI values: AFCEE, 13 March 2001, MMR-AFCEE Data Warehouse

Data Source for laboratory values: AFCEE, 13 March 2001, MMR-AFCEE Data Warehouse

The accuracy of the YSI readings are as follows: temperature (+/- 0.15%), specific conductivity (+/- 0.5% of reading plus 1 µS/cm), DO (for instrument readings 0-20 mg/L, +/- 0.2 mg/L or for instrument readings 20-50 mg/L, +/- 0.6 mg/L), pH (+/- 0.2 units), ORP (+/- 20 mV), turbidity (the greater of +/- 5% of reading or +/- 2 NTU).

Negative turbidity measurements indicate instrument drift.

**YSI - Water Quality Meter**
DO = dissolved oxygen
ORP = oxidation-reduction potential
SpC = specific conductivity
Temp = temperature
Turb = turbidity

**Units of Measure**
$^{o}$C = degrees Celsius
mg/L = milligrams per liter
mV = millivolts
NTU = nephelometric turbidity units
std = standard units
µg/L = micrograms per liter
µS/cm = microsiemens per centimeter

**Miscellaneous**
J = estimated value
ND = not detected above the method detection limit
NM = field parameters not measured
YSI = Yellow Springs Instruments, Inc.
* = Field measurements were not taken on 3/31/00 due to an oversight.

## Table 4-6
## Direct Impact Monitoring Results

| Groundwater Tests | Influent | | Effluent | | F-Test | | |
|---|---|---|---|---|---|---|---|
| **Physicochemical Parameter** | **n** | **mean** | **n** | **mean** | **Probability Level** | **Result** | **Difference** |
| Alkalinity (mg/L) | 5 | 8.75 | 5 | 16.5 | 0 | Reject $H_0$ | Yes |
| Nitrogen (µg/L) | 5 | 70.4 | 5 | 64.5 | 0.739 | Accept $H_0$ | No |
| Nitrate (µg/L) | 5 | 56.4 | 5 | 45.2 | 0.34 | Accept $H_0$ | No |
| Phosphorus (µg/L) | 5 | 30.2 | 5 | 25.9 | 0.147 | Accept $H_0$ | No |
| Phosphate (µg/L) | 5 | 26.7 | 5 | 23.5 | 0.12 | Accept $H_0$ | No |

Wilk's Lambda = 0.159, DF1=5, DF2=4, F-ratio = 4.23, Probability Level = 0.09, Decision (0.05) = Accept $H_0$

| Groundwater Tests | Influent | | Effluent | | F-Test | | |
|---|---|---|---|---|---|---|---|
| **Field Parameter** | **n** | **mean** | **n** | **mean** | **Probability Level** | **Result** | **Difference** |
| Temperature (°C) | 5 | 10.52 | 5 | 11.10 | 0.225 | Accept $H_0$ | No |
| Dissolved Oxygen (mg/L) | 5 | 9.75 | 5 | 9.81 | 0.909 | Accept $H_0$ | No |
| Turbidity (NTU) | 5 | 0.32 | 5 | 0.64 | 0.401 | Accept $H_0$ | No |
| Oxidation-Reduction Potential (mV) | 5 | 333.3 | 5 | 339.1 | 0.924 | Accept $H_0$ | No |
| Specific Conductivity (µS/cm) | 5 | 76.6 | 5 | 85.4 | 0.416 | Accept $H_0$ | No |
| pH (std) | 5 | 6.54 | 5 | 6.48 | 0.851 | Accept $H_0$ | No |

Wilk's Lambda = 0.264, DF1=6, DF2=3, F-ratio = 1.39, Probability Level = 0.42, Decision (0.05) = Accept $H_0$

° C = degrees Celsius
DF = degrees of freedom
DO = dissolved oxygen
$H_0$ = null hypothesis
mg/L = milligrams per liter
mV = millivolts
n = number of observations
NTU = nephelometric turbidity units
ORP = oxidation-reduction potential
std = standard units
YSI = Yellow Springs Instruments, Inc. water quality meter
µg/L = micrograms per liter
µS/cm = microsiemens per centimeter

The accuracy of the YSI readings are as follows: temperature (+/- 0.15%), specific conductivity (+/- 0.5% of reading plus 1 µS/cm), DO (for instrument readings 0-20 mg/L, +/- 0.2 mg/L or for instrument readings 20-50 mg/L, +/- 0.6 mg/L), pH (+/- 0.2 units), ORP (+/- 20 mV), turbidity (the greater of +/- 5% of reading or +/- 2 NTU).

**Table 5-1**
**Groundwater Elevations at FS-12 SPEIM Wells**
**January - December 2000**

| | | | | | Baseline 04 September 1997 | | March 2000 | | May 2000 | | September 2000 | | December 2000 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Well Identification | Top of Casing Elevation (ft msl) | Midscreen Elevation (ft msl) | Well Depth Class (1) | Hydraulic Monitoring (2) | Depth to Water (ft btoc) | Water Table Elevation (ft msl) | Depth to Water (ft btoc) | Groundwater Elevation (ft msl) | Depth to Water (ft btoc) | Groundwater Elevation (ft msl) | Depth to Water (ft btoc) | Groundwater Elevation (ft msl) | Depth to Water (ft btoc) | Groundwater Elevation (ft msl) |
| 90JB0001C | 126.40 | -9.80 | D | HH | 56.90 | 69.14 | NM | NC | NM | NC | 59.30 | 67.10 | 60.17 | 66.23 |
| 90JB0004A | 132.88 | 1.50 | D | HH | NM | NC | NM | NC | NM | NC | 65.98 | 66.90 | 66.93 | 65.95 |
| 90JB0006B | 125.32 | -29.72 | E | HH | NM | NC | 57.99 | 67.33 | 57.80 | 67.52 | 57.55 | 67.77 | 58.17 | 67.15 |
| 90MP0059D | 78.11 | 7.25 | C | HV, HH | 6.90 | 71.21 | 9.80 | 68.31 | 9.85 | 68.26 | 10.02 | 68.09 | 10.76 | 67.35 |
| 90MP0060D | 83.12 | -19.98 | D/E | HV, HH | 12.50 | 70.62 | NM | NC | NM | NC | 15.22 | 67.90 | 16.10 | 67.02 |
| 90MW0003 | 159.15 | 10.47 | C | HH | 87.98 | 71.17 | 91.66 | 67.50 | 91.57 | 67.59 | 91.51 | 67.65 | 92.27 | 66.89 |
| 90MW0005 | 159.39 | -29.96 | E | HH | 88.08 | 71.31 | 91.69 | 67.72 | 91.61 | 67.80 | 91.53 | 67.88 | 92.30 | 67.11 |
| 90MW0007 | 159.48 | -24.30 | E | HH | 87.72 | 71.76 | 91.22 | 68.26 | 91.19 | 68.29 | 91.03 | 68.45 | 91.82 | 67.66 |
| 90MW0010 | 78.87 | 60.27 | A | HV | 8.06 | 70.81 | 10.95 | 67.92 | 10.86 | 68.01 | 11.21 | 67.58 | 11.86 | 66.93 |
| 90MW0011 | 78.95 | 30.24 | B | HV | 8.12 | 70.83 | 11.04 | 67.74 | 10.94 | 67.84 | 11.29 | 67.49 | 12.00 | 66.78 |
| 90MW0015 | 78.94 | -19.69 | D/E | HV, HH | 8.10 | 70.84 | 11.04 | 67.90 | 10.63 | 68.31 | 11.27 | 67.67 | 11.98 | 66.96 |
| 90MW0017 | 145.12 | 9.30 | C | HH | 74.07 | 71.05 | 77.74 | 67.38 | 77.62 | 67.50 | 77.73 | 67.39 | 78.44 | 66.68 |
| 90MW0019 | 157.39 | -9.20 | D | HH | 85.28 | 72.07 | 88.71 | 68.64 | 88.75 | 68.60 | 88.65 | 68.70 | 89.40 | 67.95 |
| 90MW0020 | 139.45 | -11.13 | D | HH | NM | NC | 72.25 | 67.31 | 72.04 | 67.44 | 72.04 | 67.52 | 72.87 | 66.69 |
| 90MW0021 | 123.48 | -8.80 | D | HH | NM | NC | 54.61 | 68.87 | 54.62 | 68.86 | 54.61 | 68.87 | 55.33 | 68.15 |
| 90MW0024 | 143.62 | -12.77 | D | HH | 72.92 | 70.70 | 76.39 | 67.23 | 76.27 | 67.35 | 76.16 | 67.46 | 77.01 | 66.61 |
| 90MW0025 | 150.58 | -11.00 | D | HH | 80.25 | 70.33 | 83.43 | 67.15 | 83.26 | 67.32 | 83.22 | 67.36 | 84.03 | 66.55 |
| 90MW0026 | 137.83 | -10.81 | D | HH | NM | NC | 77.10 | 60.73 | 70.58 | 67.25 | 70.51 | 67.32 | 71.35 | 66.48 |
| 90MW0027 | 136.39 | -29.23 | E | HV, HH | 65.45 | 70.94 | 68.89 | 67.50 | 68.74 | 67.65 | 68.86 | 67.53 | 69.63 | 66.76 |
| 90MW0028 | 144.53 | -34.14 | E | HH | 74.08 | 69.65 | 76.88 | 67.65 | 76.76 | 67.77 | 76.52 | 68.01 | 77.42 | 67.11 |
| 90MW0032 | 152.46 | -6.46 | D | HH | 81.43 | 71.03 | 85.03 | 67.43 | 84.92 | 67.54 | 84.72 | 67.74 | 85.60 | 66.86 |
| 90MW0033 | 154.34 | -7.34 | D | HH | 83.52 | 70.82 | 87.08 | 67.26 | 87.01 | 67.33 | 86.70 | 67.64 | 87.64 | 66.70 |
| 90MW0036 | 126.31 | 14.70 | C | HH | 54.56 | 71.75 | 58.06 | 68.25 | 58.05 | 68.26 | 57.85 | 68.46 | 58.68 | 67.63 |
| 90MW0040 | 147.39 | -42.41 | F | HH | 77.00 | 70.39 | 80.31 | 67.08 | 80.15 | 67.24 | 80.05 | 67.34 | 80.80 | 66.59 |
| 90MW0042 | 151.11 | -1.40 | D | HH | 81.19 | 69.92 | 84.55 | 66.56 | 84.45 | 66.66 | 84.06 | 67.05 | 85.04 | 66.07 |
| 90MW0047 | 137.60 | -49.00 | F | HV, HH | 67.86 | 69.74 | 70.26 | 67.34 | 70.04 | 67.56 | 69.86 | 67.74 | 70.51 | 67.09 |
| 90MW0048 | 136.41 | 11.34 | C | HV | 65.85 | 70.56 | 68.93 | 67.48 | 68.81 | 67.60 | 68.92 | 67.49 | 69.68 | 66.73 |
| 90MW0049 | 80.74 | -95.62 | H | HH | NM | NC | 13.05 | 67.69 | 12.92 | 67.82 | 13.16 | 67.58 | 13.90 | 66.84 |
| 90MW0050 | 82.67 | -4.44 | D | HH | 12.08 | 70.59 | 14.95 | 67.72 | 14.83 | 67.84 | 15.05 | 67.62 | 15.79 | 66.88 |
| 90MW0053 | 149.75 | -40.47 | F | HV, HH | 79.45 | 70.30 | 82.86 | 66.89 | 82.72 | 67.03 | 82.55 | 67.20 | 83.35 | 66.37 |
| 90MW0054 | 83.42 | -25.74 | E | HH | NM | NC | 15.19 | 68.23 | 15.02 | 68.40 | 15.29 | 68.13 | 16.03 | 67.39 |
| 90MW0055 | 150.70 | -70.65 | F | HV, HH | NM | NC | 82.72 | 67.98 | 82.59 | 68.11 | 83.48 | 67.22 | 84.27 | 66.43 |
| 90MW0056 | 139.79 | -77.43 | F | HV | NM | NC | 70.22 | 69.57 | 70.05 | 69.74 | 69.82 | 69.97 | 70.43 | 69.36 |
| 90MW0058 | 98.35 | -51.70 | F | EC | NM | NC | NM | NC | 30.61 | 67.74 | NM | NC | 31.30 | 67.05 |
| 90MW0064 | 143.28 | -63.95 | G | HV, HH | NM | NC | 76.80 | 66.48 | 76.66 | 66.62 | NM | NC | NM | NC |
| 90MW0064A | 142.84 | 35.64 | B | HV, HH | NM | NC | 76.40 | 66.44 | 76.23 | 66.61 | NM | NC | NM | NC |
| 90MW0066 | 132.11 | -58.64 | F | HV | 62.25 | 69.86 | 64.68 | 67.43 | 64.41 | 67.70 | 64.38 | 67.73 | 64.86 | 67.25 |
| 90MW0066A | 131.70 | -10.09 | D | HV, HH | 61.71 | 69.99 | 64.60 | 67.10 | 64.41 | 67.29 | 64.30 | 67.40 | 65.02 | 66.68 |
| 90MW0068 | 135.15 | -2.10 | D | HH | NM | NC | 68.48 | 66.67 | 68.29 | 66.86 | 68.05 | 67.10 | 69.03 | 66.12 |
| 90MW0070 | 124.61 | -9.89 | D | HH | NM | NC | 56.26 | 68.35 | 56.08 | 68.53 | 56.29 | 68.32 | 56.98 | 67.63 |
| 90MW0076 | 147.43 | -9.97 | D | HH | NM | NC | 80.31 | 67.12 | 80.17 | 67.26 | NM | NC | NM | NC |
| 90MW0077 | 143.99 | -6.11 | D | HH | NM | NC | 77.63 | 66.36 | 77.45 | 66.54 | 77.10 | 66.89 | 78.13 | 65.86 |
| 90MW0078 | 140.41 | -8.93 | D | HH | NM | NC | 73.27 | 67.14 | 73.11 | 67.30 | NM | NC | NM | NC |
| 90MW0079A | 150.99 | 2.75 | C | HV, HH | NM | NC | 84.41 | 66.58 | 84.28 | 66.71 | NM | NC | NM | NC |
| 90MW0079B | 150.95 | -37.29 | E | HV, HH | NM | NC | 84.28 | 66.67 | 84.15 | 66.80 | NM | NC | NM | NC |
| 90MW0079C | 150.98 | -71.30 | G | HV, HH | NM | NC | 84.30 | 66.68 | 84.16 | 66.82 | NM | NC | NM | NC |
| 90MW0080 | 118.68 | -22.41 | E | HH | 47.80 | 70.88 | 51.03 | 67.65 | 50.87 | 67.81 | 51.09 | 67.59 | 51.80 | 66.88 |
| 90MW0081 | 144.31 | 33.25 | B | HH | NM | NC | 77.39 | 66.92 | 77.27 | 67.04 | NM | NC | NM | NC |
| 90MW0082A | 147.94 | 52.94 | A | HV, HG | 77.72 | 70.22 | 81.23 | 66.71 | 81.08 | 66.86 | 80.90 | 67.04 | 81.65 | 66.29 |
| 90MW0082B | 147.94 | 27.84 | B | HV, HG | 77.70 | 70.24 | 81.03 | 66.91 | 80.87 | 67.07 | 80.70 | 67.24 | 84.12 | 63.82 |
| 90MW0083 | 131.81 | 22.76 | B | HH | 61.81 | 70.00 | 64.70 | 67.11 | 64.50 | 67.31 | 64.38 | 67.43 | 65.12 | 66.69 |

## Table 5-1
## Groundwater Elevations at FS-12 SPEIM Wells
## January - December 2000

| | | | | | Baseline 04 September 1997 | | March 2000 | | May 2000 | | September 2000 | | December 2000 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Well Identification** | **Top of Casing Elevation (ft msl)** | **Midscreen Elevation (ft msl)** | **Well Depth Class (1)** | **Hydraulic Monitoring (2)** | **Depth to Water (ft btoc)** | **Water Table Elevation (ft msl)** | **Depth to Water (ft btoc)** | **Groundwater Elevation (ft msl)** | **Depth to Water (ft btoc)** | **Groundwater Elevation (ft msl)** | **Depth to Water (ft btoc)** | **Groundwater Elevation (ft msl)** | **Depth to Water (ft btoc)** | **Groundwater Elevation (ft msl)** |
| 90MW0085A | 113.30 | -13.05 | D | HH | NM | NC | 45.62 | 67.68 | 45.47 | 67.83 | NM | NC | NM | NC |
| 90MW0085B | 113.24 | 21.95 | B | HH | NM | NC | 45.64 | 67.60 | 45.48 | 67.76 | NM | NC | NM | NC |
| 90MW0086C* | 155.59 | -3.23 | D | HH | NM | NC | 88.81 | 66.78 | NM | NC | NM | NC | NM | NC |
| 90MW0087A* | 153.16 | -33.24 | E | HH | NM | NC | 86.68 | 66.48 | NM | NC | NM | NC | NM | NC |
| 90MW0088A* | 147.52 | -43.38 | F | HH | NM | NC | 81.12 | 66.40 | NM | NC | NM | NC | NM | NC |
| 90MW0088B* | 147.51 | 11.42 | C | HH | NM | NC | 81.12 | 66.39 | NM | NC | NM | NC | NM | NC |
| 90MW0089B* | 139.19 | -52.73 | F | HV, HH | NM | NC | 72.76 | 66.43 | NM | NC | NM | NC | NM | NC |
| 90MW0089C* | 139.60 | -32.57 | E | HV, HH | NM | NC | 73.26 | 66.34 | NM | NC | NM | NC | NM | NC |
| 90MW0089D | 139.62 | -7.57 | D | HV, HH | NM | NC | 73.29 | 66.33 | 73.10 | 66.52 | NM | NC | NM | NC |
| 90MW0091D* | 119.58 | -7.46 | D | HH | NM | NC | 52.63 | 66.95 | NM | NC | NM | NC | NM | NC |
| 90PZ0082 | 147.94 | 52.50 | A | HH | NM | NC | 80.97 | 66.97 | 80.85 | 67.09 | 80.62 | 67.32 | 81.42 | 66.52 |
| 90PZ1-C1^ | 72.22 | 51.30 | A | EC | NM | NC | NM | NC | 7.52 | 64.70 | NM | NC | 3.43 | 68.79 |
| ECMWSNP01^ | 95.74 | 71.34 | A | EC | NM | NC | NM | NC | 27.77 | 67.97 | NM | NC | 28.81 | 66.93 |
| ECPZSNP01^ | 72.14 | 67.18 | A | EC | NM | NC | NM | NC | 4.01 | 68.13 | NM | NC | 5.25 | 66.89 |
| ECPZSNP02^ | 72.39 | 67.34 | A | EC | NM | NC | NM | NC | 3.60 | 68.79 | NM | NC | 5.27 | 67.12 |
| ECPZSNP10A^ | 72.15 | 5.98 | C | EC | NM | NC | NM | NC | 3.91 | 68.24 | NM | NC | 5.60 | 66.55 |
| ECPZSNP10B^ | 72.06 | 52.99 | A | EC | NM | NC | NM | NC | 3.99 | 68.07 | NM | NC | 5.50 | 66.56 |
| ECPZSNP11A^ | 72.77 | 16.02 | D | EC | NM | NC | NM | NC | 5.54 | 67.23 | NM | NC | 6.72 | 66.05 |
| ECPZSNP11B^ | 72.95 | 53.99 | A | EC | NM | NC | NM | NC | 4.39 | 68.56 | NM | NC | 6.25 | 66.70 |
| ECPZWK01^ | 85.85 | 56.98 | A | EC | NM | NC | NM | NC | 18.83 | 67.02 | NM | NC | 19.95 | 65.90 |
| ECPZWK02^ | 96.64 | 64.85 | A | EC | NM | NC | NM | NC | 26.83 | 66.81 | NM | NC | 27.68 | 65.96 |

Data Source: Jacobs Engineering Group Inc., 01 February 2001, Site Environmental Evaluation (SEE) database

**(1) Well Depth Class**
A = screen above 40 ft msl
B = screen between 20 and 40 ft msl
C = screen between 0 and 20 ft msl
D = screen between 0 and -20 ft msl
E = screen between -20 and -40 ft msl
F = screen between -40 and -60 ft msl
G = screen between -60 and -80 ft msl
H = screen below -80 ft msl

**(2) Hydraulic Monitoring**
HH = horizontal gradients
HV = vertical gradients
HG = model sensitivity
EC = ecological monitoring

***** = Additional water levels measured 1st and 2nd quarters 2000 per project note AFC-J23-35S19212-P1-0006.
**^** = water levels measured semiannually under SPEIM program
ft btoc = feet below top of casing
ft msl = feet mean sea level
NM = not measured
NC = not calculated
SPEIM = system performance and ecological impact monitoring

**Table 5-2**
**Summary of Laboratory Analyses and Field Parameters, FS-12 SPEIM Monitoring Network**
**January - December 2000**

| | | | | Laboratory Analyses | | | | | | | | | | | | | | | | | YSI - Water Quality Meter | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Well Identification** | **Well Depth Class (1)** | **Contaminant Monitoring (2)** | **Date Sampled** | **EDB (by 504.1) (µg/L) MMCL = 0.02 µg/L** | **EDB (by OLC 02.1) (µg/L) MMCL = 0.02 µg/L** | **Benzene (by OLC 02.1) (µg/L) MCL = 5 µg/L** | **Toluene (by OLC 02.1) (µg/L) MCL = 1,000 µg/L** | **Ethylbenzene (by OLC 02.1) (µg/L) MCL = 700 µg/L** | **Xylenes (by OLC 02.1) (µg/L) MCL = 10,000 µg/L** | **TDS (mg/L)** | **TSS (mg/L)** | **Alk (mg/L)** | **DOC (mg/L)** | **Total N (µg/L)** | **$NH_3$ (µg/L)** | **$NO_3$ (µg/L)** | **$NO_2$ (µg/L)** | **Total P (µg/L)** | **$oPO_4$ (µg/L)** | **TOC (mg/L)** | **Temp ($^oC$)** | **SpC (µS/cm)** | **DO (mg/L)** | **pH (std)** | **ORP (mV)** | **Turb (NTU)** |
| 90EW0001 Z=125.66 | C, D, E, F | E | 24-Oct-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.17 | 86 | 7.6 | 5.72 | 296.7 | 126.2 |
| 90EW0001 Z=102.7 | C, D, E, F | E | 25-Oct-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.07 | 91 | 6.73 | 5.97 | 166.5 | 133.9 |
| 90EW0002 Z=105.66 | C, D, E, F | E | 26-Oct-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.04 | 67 | 7.24 | 5.81 | 105.8 | 168.7 |
| 90EW0002 Z=125.66 | C, D, E, F | E | 26-Oct-00 | 0.007 J | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.21 | 65 | 6.61 | 5.97 | 104.9 | 95.3 |
| 90EW0003 Z=114.2 | C, D, E, F | E | 25-Oct-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.87 | 60 | 9.11 | 5.77 | 219.1 | 141.8 |
| 90EW0003 Z=134.6 | C, D, E, F | E | 25-Oct-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.97 | 53 | 9.67 | 5.99 | 212.3 | 161.4 |
| 90EW0006 | D, E, F | E | 10-May-00 | ND | ND | ND | ND | ND | ND | 50 | ND | NS | NS | NS | NS | NS | NS | NS | NS | 0.5J | 10.00 | 57 | 10.77 | 6.18 | 246.3 | -0.1 |
| 90EW0007 | D, E, F, G | E | 11-May-00 | **0.035** | ND | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | 0.61J | 10.61 | 61 | 10.35 | 6.25 | *-220.6* | -0.1 |
| | | | 15-Dec-00 | 0.04 | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 9.76 | 68 | 9.91 | 6.58 | 325.6 | -0.3 |
| 90EW0008 | D, E, F | E | 11-May-00 | **0.750** | **0.6** | 0.560 | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | 0.56J | 10.24 | 62 | 10.31 | 6.01 | *-218.5* | -0.4 |
| | | | 15-Dec-00 | **0.45 J** | **0.45 J** | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 9.69 | 68 | 9.47 | 6.05 | 324.4 | -0.4 |
| 90EW0009 | D, E, F | E | 16-May-00 | **4.80** | **3.40** | **77** | ND | ND | ND | 46 | ND | NS | NS | NS | NS | NS | NS | NS | NS | 0.65J | 10.24 | 66 | 10.19 | 6.05 | 227.6 | -0.5 |
| | | | 15-Dec-00 | **1.1 J** | **1** | **6** | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 9.71 | 70 | 8.42 | 5.9 | 314.2 | 0.4 |
| 90EW0010 | B, C, D, E | E | 12-May-00 | **1.5** | **1.4 J** | **46.0** | ND | ND | ND | 38 | ND | NS | NS | NS | NS | NS | NS | NS | NS | 0.93J | 10.38 | 81 | 6.45 | 5.77 | *-180.5* | -0.2 |
| 90EW0011 | C, D, E, F | E | 12-May-00 | **4.40** | **3.80** | **28.0** | ND | ND | ND | 40 | ND | NS | NS | NS | NS | NS | NS | NS | NS | 0.81J | 10.43 | 76 | 6.62 | 5.76 | *-212.9* | -0.1 |
| | | | 15-Dec-00 | **2.1 J** | **2.2** | **13** | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.44 | 99 | 4.97 | 5.82 | 289 | -0.3 |
| 90EW0012 | C, D, E, F | E | 12-May-00 | **31.0** | **26.0** | **110** | ND | ND | ND | 40 | ND | NS | NS | NS | NS | NS | NS | NS | NS | 0.97J | 10.37 | 75 | 6.36 | 5.75 | *-221.5* | -0.2 |
| | | | 15-Dec-00 | **10** | **9.6** | **71** | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.19 | 90 | 4.75 | 5.82 | 270.6 | 0.2 |
| 90EW0013 | C, D, E, F | E | 12-May-00 | **14.0** | **12.0** | **77.0** | ND | ND | ND | 48 | ND | NS | NS | NS | NS | NS | NS | NS | NS | 0.91J | 10.38 | 68 | 8.24 | 5.80 | *-221.4* | -0.3 |
| | | | 18-Dec-00 | **4.7** | **4.5** | **17** | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 9.63 | 111 | 7.46 | 5.98 | 143.9 | 0 |
| 90EW0014 | C, D, E, F | E | 12-May-00 | **2.50** | **2.40** | 1.60 | ND | ND | ND | 30 | ND | NS | NS | NS | NS | NS | NS | NS | NS | 0.65J | 10.54 | 63 | 10.46 | 5.79 | *-210.1* | 1.6 |
| | | | 18-Dec-00 | **0.89** | **0.81 J** | 2.5 | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 9.71 | 105 | 9.51 | 5.92 | 142.9 | -0.1 |
| 90EW0015 | C, D, E, F | E | 15-May-00 | **3.9** | **3.1** | 2.3 | ND | ND | ND | 52 | ND | NS | NS | NS | NS | NS | NS | NS | NS | 0.61J | 10.43 | 62 | 9.83 | 6.15 | *-184.1* | -0.2 |
| | | | 18-Dec-00 | **3.3** | **3.1** | 2.9 | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 9.78 | 121 | 10.09 | 6.01 | 154 | -0.1 |
| 90EW0016 | C, D, E, F | E | 15-May-00 | **8.70** | **7.4 J** | 0.83 | ND | ND | ND | 44 | ND | NS | NS | NS | NS | NS | NS | NS | NS | 0.54J | 10.97 | 61 | 9.50 | 6.11 | *-209.6* | -0.3 |
| | | | 18-Dec-00 | **5** | **5** | 1.3 | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 9.75 | 121 | 9.65 | 6.03 | 144.4 | -0.1 |
| 90EW0017 | C, D, E, F | E | 15-May-00 | **13.0** | **13.0** | 2.40 | ND | ND | ND | 52 | ND | NS | NS | NS | NS | NS | NS | NS | NS | 0.85J | 10.41 | 62 | 10.34 | 5.98 | *-195.0* | -0.3 |
| | | | 18-Dec-00 | **8.7** | **9.1** | 1.4 | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 9.56 | 121 | 10.57 | 5.97 | 148.4 | -0.2 |
| 90EW0018 | C, D, E, F | E | 15-May-00 | **6.7** | **5.2** | **21.0** | ND | ND | ND | 62 | ND | NS | NS | NS | NS | NS | NS | NS | NS | 0.63J | 10.93 | 71 | 9.62 | 5.64 | *-154.7* | 0.1 |
| | | | 18-Dec-00 | **4.3** | **4.3** | **5.3** | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 9.85 | 127 | 9.25 | 5.65 | 173.6 | -0.2 |
| 90EW0019 | C, D, E, F, G | E | 15-May-00 | **23.0** | **25.0** | 4.30 | ND | ND | ND | 48 | ND | NS | NS | NS | NS | NS | NS | NS | NS | 0.61J | 10.57 | 64 | 9.42 | 5.66 | *-167.4* | -0.3 |
| | | | 19-Dec-00 | **15** | **16** | 4.2 | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.02 | 71 | 9.02 | 5.9 | 362.6 | 175.5 |
| 90EW0020 | C, D, E, F | E | 15-May-00 | ND | ND | ND | ND | ND | ND | 54 | ND | NS | NS | NS | NS | NS | NS | NS | NS | ND | 11.49 | 72 | 7.68 | 6.02 | *-185.7* | -0.1 |
| | | | 19-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.16 | 83 | 8.48 | 6.15 | 349.2 | 0.5 |
| 90EW0021 | C, D, E, F | E | 16-May-00 | ND | ND | ND | ND | ND | ND | 48 | ND | NS | NS | NS | NS | NS | NS | NS | NS | ND | 11.23 | 71 | 9.39 | 6.00 | 208.2 | 1.0 |
| | | | 19-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.98 | 77 | 7.81 | 6.04 | 358.2 | 0.3 |
| 90EW0022 | C, D, E, F | E | 16-May-00 | ND | ND | ND | ND | ND | ND | 44 | ND | NS | NS | NS | NS | NS | NS | NS | NS | ND | 10.69 | 70 | 9.98 | 5.79 | 201.4 | -0.5 |
| | | | 19-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.42 | 73 | 7.7 | 5.91 | 358.2 | 0.4 |
| 90EW0023 | C, D, E, F | E | 16-May-00 | 0.0130 | ND | ND | ND | ND | ND | 40 | ND | NS | NS | NS | NS | NS | NS | NS | NS | 0.47J | 10.73 | 71 | 10.57 | 5.69 | 202.5 | -0.2 |
| | | | 19-Dec-00 | 0.0095 J | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.27 | 73 | 8.71 | 5.8 | 36.5 | 2 |
| 90EW0024 | C, D, E, F | E | 16-May-00 | **0.240** | ND | ND | ND | ND | ND | 52 | ND | NS | NS | NS | NS | NS | NS | NS | NS | 0.5J | 11.05 | 75 | 9.37 | 5.75 | 204.0 | -0.3 |
| | | | 19-Dec-00 | **0.13** | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.59 | 78 | 8.54 | 5.88 | 372.6 | 0.3 |
| 90EW0025 | C, D, E, F | E | 16-May-00 | **0.760** | **0.780** | ND | ND | ND | ND | 48 | ND | NS | NS | NS | NS | NS | NS | NS | NS | ND | 11.10 | 78 | 8.47 | 5.81 | 201.1 | -0.2 |
| | | | 20-Dec-00 | **0.69** | **0.61 J** | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.12 | 72 | 7.68 | 6.1 | 129.9 | -0.5 |
| 90EW0026 | C, D, E, F | E | 17-May-00 | **1.50** | **1.40** | ND | ND | ND | ND | 34 | ND | NS | NS | NS | NS | NS | NS | NS | NS | 0.48J | 10.76 | 73 | 9.47 | 5.95 | 211.3 | -0.3 |
| | | | 20-Dec-00 | **0.79 J** | **0.94 J** | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.2 | 67 | 7.92 | 5.99 | 153 | -0.2 |
| 90EW0027 | C, D, E, F | E | 17-May-00 | **1.80** | **1.30** | ND | ND | ND | ND | 42 | ND | NS | NS | NS | NS | NS | NS | NS | NS | 0.53J | 10.59 | 75 | 9.30 | 5.71 | 214.1 | -0.1 |
| | | | 20-Dec-00 | **2.2 J** | **2.5** | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.08 | 68 | 7.89 | 5.86 | 163.3 | -0.5 |
| 90EW0028 | C, D, E, F | E | 17-May-00 | **4.30** | **3.4 J** | ND | ND | ND | ND | 38 | ND | NS | NS | NS | NS | NS | NS | NS | NS | 0.45J | 10.83 | 81 | 9.37 | 5.61 | 216.0 | -0.1 |
| | | | 20-Dec-00 | **3.3** | **3** | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.38 | 70 | 7.63 | 5.66 | 176.3 | -0.5 |
| 90EW0029 | C, D, E, F | E | 17-May-00 | **1.40** | **1.20** | ND | ND | ND | ND | 38 | ND | NS | NS | NS | NS | NS | NS | NS | NS | 0.5J | 10.51 | 74 | 11.73 | 5.76 | 207.3 | -0.4 |
| | | | 20-Dec-00 | **0.9** | **0.92 J** | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 9.84 | 58 | 9.7 | 5.84 | 158.5 | -0.3 |
| 90EW0030 | C, D, E, F | E | 17-May-00 | ND | ND | ND | ND | ND | ND | 28 | ND | NS | NS | NS | NS | NS | NS | NS | NS | 0.56J | 10.88 | 71 | 13.01 | 5.79 | 211.4 | -0.7 |
| | | | 20-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 9.72 | 55 | 10.84 | 5.89 | 154.7 | 0 |

**Table 5-2**
**Summary of Laboratory Analyses and Field Parameters, FS-12 SPEIM Monitoring Network**
**January - December 2000**

| | | | | Laboratory Analyses | | | | | | | | | | | | | | | | | YSI - Water Quality Meter | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Well Identification | Well Depth Class (1) | Contaminant Monitoring (2) | Date Sampled | EDB (by 504.1) (µg/L) MMCL = 0.02 µg/L | EDB (by OLC 02.1) (µg/L) MMCL = 0.02 µg/L | Benzene (by OLC 02.1) (µg/L) MCL = 5 µg/L | Toluene (by OLC 02.1) (µg/L) MCL = 1,000 µg/L | Ethylbenzene (by OLC 02.1) (µg/L) MCL = 700 µg/L | Xylenes (by OLC 02.1) (µg/L) MCL = 10,000 µg/L | TDS (mg/L) | TSS (mg/L) | Alk (mg/L) | DOC (mg/L) | Total N (µg/L) | $NH_3$ (µg/L) | $NO_3$ (µg/L) | $NO_2$ (µg/L) | Total P (µg/L) | $oPO_4$ (µg/L) | TOC (mg/L) | Temp (°C) | SpC (µS/cm) | DO (mg/L) | pH (std) | ORP (mV) | Turb (NTU) |
| 90JB0001B | B | P | 16-Mar-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.31 | 65 | 8.90 | 5.86 | 157.3 | 1.5 |
| | | | 3-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.60 | 65 | 7.48 | 5.73 | 123.6 | 1.9 |
| | | | 7-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 14.10 | 64 | 7.10 | 5.93 | 72.4 | 3.5 |
| | | | 8-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.75 | 100 | 7.96 | 5.75 | 163.3 | 3.3 |
| 90JB0001C | D | P | 16-Mar-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.02 | 60 | 8.02 | 5.82 | 173.1 | 1.2 |
| | | | 3-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.10 | 59 | 7.51 | 5.72 | 158.8 | 1.0 |
| | | | 7-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.60 | 61 | 7.40 | 5.91 | 54.2 | 1.9 |
| | | | 8-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.32 | 98 | 7.29 | 5.9 | 168.4 | 3.1 |
| 90JB0001D | E | P | 16-Mar-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.90 | 60 | 8.98 | 6.08 | 125.1 | 4.3 |
| | | | 3-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.24 | 61 | 9.03 | 5.91 | 61.6 | 3.5 |
| | | | 7-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.40 | 60 | 10.10 | 6.28 | -5.5 | 3.0 |
| | | | 12-Dec-00 | ND | ND | ND | 1 | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.93 | 99 | 9.61 | 6.06 | 104.9 | 3.9 |
| 90JB0004A | C | P | 17-Feb-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.39 | 62 | 9.26 | 5.99 | 224.2 | 2.7 |
| | | | 3-May-00 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.36 | 57 | 10.30 | 5.83 | 390.2 | 7.3 |
| | | | 9-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.87 | 59 | 9.25 | 5.73 | *-193.7* | 9.9 |
| | | | 8-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 14.10 | 59 | 8.22 | 5.87 | 120.0 | 11.1 |
| | | | 8-Dec-00 | ND | ND | ND | 4.1 | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.75 | 64 | 7.33 | 5.71 | 178.2 | 6 |
| 90JB0004C | B | P | 17-Feb-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.83 | 68 | 11.41 | 5.70 | 250.5 | 4.8 |
| | | | 3-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 15.38 | 67 | 11.88 | 5.60 | 404.2 | 0.8 |
| | | | 8-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 14.20 | 67 | 11.60 | 5.57 | 183.0 | 1.3 |
| | | | 8-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.14 | 71 | 11.49 | 5.47 | 263.1 | 1.8 |
| 90JB0006B | E | R | 16-Mar-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.48 | 80 | 7.30 | 6.39 | 166.7 | 1.1 |
| | | | 3-May-00 | ND | NS | NS | NS | NS | NS | NS | 5 | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.24 | 78 | 8.01 | 6.34 | 392.1 | 5.7 |
| | | | 8-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.20 | 76 | 7.32 | 6.36 | 173.0 | 3.6 |
| | | | 8-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.1 | 82 | 9.2 | 6.17 | 256.9 | 2.2 |
| 90MP0059A | G | AM | 9-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.78 | 45 | 11.37 | 6.39 | 385.7 | 147.8 |
| 90MP0059B | F | AM | 2-May-00 | 0.016 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 9.66 | 61 | 11.87 | 5.60 | 440.5 | 0.0 |
| | | | 6-Sep-00 | **0.028** | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.10 | 59 | 9.95 | 6.03 | 417.0 | 16.7 |
| | | | 25-Oct-00 | **0.031** | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.09 | 97 | 10.86 | 6.07 | 365 | 1.6 |
| 90MP0059C | D | AM | 2-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 9.79 | 57 | 11.76 | 5.73 | 431.1 | 2.0 |
| 90MP0059D | C | P | 26-Apr-00 | NS | NS | NS | NS | NS | NS | NS | NS | ND | 0.48 J | 53.5 | 7.8 J | 43.4 | ND | 11.6 | 10.3 | 0.44 J | 8.95 | 67 | 11.50 | 6.05 | 458.0 | 0.7 |
| | | AM | 2-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 9.86 | 65 | 11.50 | 5.50 | 443.8 | 0.4 |
| | | P | 31-May-00 | NS | NS | NS | NS | NS | NS | NS | NS | ND | ND | 159 | 7.6 J | 109 | ND | 30.7 | 28.1 | ND | 11.70 | 59 | 11.40 | 5.98 | 307.0 | 0.4 |
| 90MP0059E | B | AM | 2-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 9.93 | 81 | -0.03 | 5.79 | 132.0 | 0.0 |
| 90MP0059F | A | AM | 2-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 9.44 | 72 | 9.75 | 5.16 | 432.9 | -0.1 |
| 90MP0060A | G | AM | 6-Sep-00 | **0.349** | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.50 | 69 | 8.59 | 6.78 | 383.0 | 63.3 |
| | | | 25-Oct-00 | 0.189 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.39 | 112 | 9.22 | 6.65 | 354.7 | 8.7 |
| 90MP0060B | G | AM | 3-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.04 | 78 | 10.27 | 6.31 | 404.2 | 7.9 |
| | | | 6-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.50 | 78 | 9.34 | 6.46 | 399.0 | 16.8 |
| | | | 25-Oct-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.41 | 116 | 9.75 | 6.45 | 351 | 1.3 |
| 90MP0060C | F | AM | 3-May-00 | ND | ND | ND | ND | ND | ND | NS | NS | 18.3 | 0.54 J | 44 | 5.2 J | 43.5 | 0.5 J | 49.1 | 43.9 | ND | 10.89 | 75 | 9.75 | 6.23 | 396.4 | 2.5 |
| 90MP0060D | D | P | 16-Mar-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.70 | 75 | 9.76 | 6.37 | 315.9 | 6.5 |
| | | | 3-May-00 | ND | ND | ND | ND | ND | ND | NS | NS | 18 | 0.75 J | 29.3 J | ND | 34.8 | 0.6 J | 38.1 | 33.4 | ND | 11.23 | 76 | 9.83 | 6.29 | 401.7 | 0.9 |
| | | | 12-Sep-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.60 | 78 | 9.41 | 6.30 | 285.0 | 1.6 |
| | | | 13-Dec-00 | ND | ND | ND | 0.66 J | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.1 | 113 | 9.47 | 6.57 | 252.7 | 1.6 |
| 90MP0060E | D | AM | 3-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.00 | 77 | 9.75 | 6.26 | 397.9 | 0.7 |
| 90MP0060F | B | AM | 3-May-00 | ND | ND | ND | ND | ND | ND | NS | NS | 18.3 | 0.69 J | 29.5 J | 8.7 J | 36.8 | 0.6 J | 40.9 | 35.1 | ND | 10.89 | 76 | 9.74 | 6.01 | 413.6 | 1.0 |
| 90MW0001 | B | P | 14-Mar-00 | ND | ND | **27.0** | 1.10 | 4.00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.69 | 191 | 0.63 | 5.91 | 82.7 | 0.5 |
| | | | 12-Sep-00 | ND | ND | **34.0** | 1.1 J | 7.60 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 17.40 | 189 | 0.74 | 5.90 | 71.2 | 1.3 |
| 90MW0002 | A | P | 20-Mar-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.30 | 64 | 11.48 | 5.82 | 395.3 | 0.2 |
| | | | 7-Sep-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 14.70 | 58 | 11.00 | 5.59 | 447.0 | 0.1 |
| 90MW0003 | C | P | 14-Mar-00 | 0.0081 J | ND | **64.0** | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.89 | 93 | 1.09 | 5.93 | 246.4 | 1.6 |
| | | | 4-May-00 | **0.031** | ND | **45.0** | ND | 1.10 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 14.42 | 91 | 0.95 | 5.97 | 237.2 | 0.5 |
| | | | 8-Sep-00 | ND | ND | 3.90 | ND | 0.56 J | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.59 | 92 | 0.89 | 5.78 | 103.0 | 1.8 |
| | | | 11-Dec-00 | ND | ND | 1.1 | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.69 | 96 | 0.87 | 5.69 | 172.7 | 0.8 |

**Table 5-2**
**Summary of Laboratory Analyses and Field Parameters, FS-12 SPEIM Monitoring Network**
**January - December 2000**

| | | | | Laboratory Analyses | | | | | | | | | | | | | | | | | YSI - Water Quality Meter | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Well Identification | Well Depth Class (1) | Contaminant Monitoring (2) | Date Sampled | EDB (by 504.1) (µg/L) MMCL = 0.02 µg/L | EDB (by OLC 02.1) (µg/L) MMCL = 0.02 µg/L | Benzene (by OLC 02.1) (µg/L) MCL = 5 µg/L | Toluene (by OLC 02.1) (µg/L) MCL = 1,000 µg/L | Ethylbenzene (by OLC 02.1) (µg/L) MCL = 700 µg/L | Xylenes (by OLC 02.1) (µg/L) MCL = 10,000 µg/L | TDS (mg/L) | TSS (mg/L) | Alk (mg/L) | DOC (mg/L) | Total N (µg/L) | $NH_3$ (µg/L) | $NO_3$ (µg/L) | $NO_2$ (µg/L) | Total P (µg/L) | $oPO_4$ (µg/L) | TOC (mg/L) | Temp (°C) | SpC (µS/cm) | DO (mg/L) | pH (std) | ORP (mV) | Turb (NTU) |
| 90MW0005 | E | P | 14-Mar-00 | **2.40** | **2.90** | **28.0** | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.53 | 79 | 0.70 | 6.09 | 230.3 | 0.5 |
| | | | 4-May-00 | **3.50** | **2.90** | **29.0** | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.57 | 80 | 1.25 | 6.10 | 171.9 | 1.4 |
| | | | 11-Sep-00 | **3.00** | **2.4** | 3.10 | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.60 | 81 | 0.52 | 5.83 | 332.0 | 0.6 |
| | | | 11-Dec-00 | **1.9** | **1.9** | 1.7 | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.72 | 86 | 0.63 | 5.92 | 196.5 | 0.9 |
| 90MW0007 | E | P | 20-Mar-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.31 | 94 | 0.26 | 6.77 | 88.1 | 6.0 |
| | | | 7-Sep-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.40 | 94 | 0.22 | 6.56 | 36.5 | 10.4 |
| 90MW0009 | C | P, AM | 2-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.30 | 69 | 12.97 | 5.76 | 257.9 | 0.5 |
| 90MW0010 | A | P, AM | 2-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.42 | 64 | 3.71 | 5.34 | 290.6 | -0.1 |
| 90MW0011 | B | P, AM | 2-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.00 | 81 | 9.11 | 5.73 | 259.4 | 0.3 |
| 90MW0015 | D | B | 17-Feb-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.91 | 49 | 9.56 | 6.02 | 189.1 | 0.1 |
| | | | 20-Mar-00 | NS | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.00 | 65 | 9.67 | 6.10 | 357.6 | 2.3 |
| | | | 5-May-00 | ND | ND | ND | ND | ND | ND | NS | NS | ND | ND | ND | ND | 71.1 | ND | 32.5 | 29.4 | ND | 15.00 | 67 | 9.91 | 6.04 | 293.7 | 2.0 |
| | | | 7-Sep-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 14.70 | 71 | 9.23 | 5.94 | 360.0 | 1.3 |
| | | | 13-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.55 | 110 | 9.84 | 6.16 | 130.9 | 1.5 |
| 90MW0017 | D | P, AM | 2-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.27 | 64 | 12.66 | 5.53 | 232.7 | 320.1 |
| 90MW0019 | D | P, AM | 11-Dec-00 | ND | ND | 0.56 J | ND | 3.1 | 1.7 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.91 | 102 | 0.49 | 5.6 | 230.4 | 0.8 |
| 90MW0020 | D | P | 31-Jan-00 | NS | NS | NS | NS | NS | NS | NS | NS | 26.1 | ND | 153 | 118 | 13 | 1.4 | 71.6 | 66.5 | ND | 11.04 | 79 | 0.44 | 6.05 | *-15.7* | 1.2 |
| | | | 1-Mar-00 | NS | NS | NS | NS | NS | NS | NS | NS | 23.4 | 1.6 | 182 | 120 | 14.1 | 1.5 | 78.7 | 71.3 | 1 | 11.84 | 82 | 0.64 | 6.06 | 4.3 | 0.9 |
| | | | 15-Mar-00 | **0.130** | ND | **680** | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.97 | 83 | 1.12 | 5.92 | 60.4 | 0.3 |
| | | | 31-Mar-00 | NS | NS | NS | NS | NS | NS | NS | NS | 24.1 | 1.1 | 126 | 77.3 | 11.8 | 2.5 | 70.7 | 63.6 | 1.1 | 12.53 | 88 | 0.53 | 6.00 | -2.8 | 0.4 |
| | | | 3-May-00 | **0.180** | ND | **750** | ND | ND | ND | NS | NS | 25.6 | ND | 152 | 137 | ND | 3.3 | 80.7 | 72.6 | ND | 12.61 | 80 | 0.57 | 6.05 | *-92.9* | 0.3 |
| | | | 30-May-00 | NS | NS | NS | NS | NS | NS | NS | NS | 27 | 1.6 | 486 | 293 | 11.3 | 3.5 | 109 | 99.2 | 1.5 | 12.48 | 80 | 1.48 | 6.09 | 6.2 | 4.9 |
| | | | 12-Sep-00 | **0.18** | ND | 4.80 | 19 | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 14.60 | 70 | 1.53 | 6.02 | 14.4 | 0.6 |
| | | | 13-Dec-00 | **0.35** | ND | **7** | 35 | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.82 | 82 | 2.32 | 6.04 | 30.3 | 0.6 |
| 90MW0024 | D | AM | 14-Sep-00 | **0.13** | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.40 | 54 | 10.10 | 6.25 | 371.0 | 1.0 |
| 90MW0025 | D | P | 15-Mar-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.83 | 49 | 10.97 | 5.99 | 380.7 | 2.0 |
| | | | 8-May-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 16.96 | 51 | 10.68 | 5.87 | 212.5 | 1.0 |
| | | | 12-Sep-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 16.20 | 53 | 10.10 | 6.03 | 259.0 | 2.2 |
| | | | 13-Dec-00 | **0.12** | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.75 | 66 | 12.57 | 5.92 | 226 | 1.6 |
| 90MW0027 | E | P | 16-Mar-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.84 | 60 | 7.91 | 6.02 | 339.4 | 2.8 |
| | | | 4-May-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.41 | 61 | 7.80 | 6.52 | 391.2 | 3.3 |
| | | | 12-Sep-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 14.90 | 61 | 7.09 | 6.51 | 204.0 | 4.6 |
| | | | 13-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.18 | 74 | 7.69 | 6.35 | 186 | 3.2 |
| 90MW0028 | E | P | 14-Mar-00 | **7.80** | **8.30** | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.88 | 57 | 7.58 | 5.83 | 138.7 | 11.5 |
| | | | 5-May-00 | **3.60** | **3.5** | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.52 | 57 | 9.24 | 5.94 | 357.9 | 2.5 |
| | | | 11-Sep-00 | **3.40** | **3.1** | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.30 | 57 | 7.99 | 5.89 | 154.0 | 4.2 |
| | | | 12-Dec-00 | **1.9** | **1.9** | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.29 | 62 | 8.1 | 5.87 | 265 | 5.1 |
| 90MW0032 | G | | 13-Sep-00 | **0.099** | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.30 | 58 | 4.04 | 5.48 | 345.0 | 6.4 |
| 90MW0033 | D | P | 13-Mar-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.95 | 54 | 11.72 | 5.14 | 213.0 | 0.0 |
| | | | 3-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.48 | 68 | 12.23 | 5.98 | 262.1 | 4.1 |
| | | | 13-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.70 | 54 | 11.00 | 5.44 | 371.0 | 7.4 |
| | | | 14-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.09 | 62 | 9.99 | 5.97 | 293.4 | 8 |
| 90MW0034 | B | P | 21-Mar-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.45 | 192 | 0.23 | 6.65 | *-88.7* | 1.0 |
| | | | 14-Sep-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.00 | 169 | 0.22 | 6.60 | *-105.0* | 0.5 |
| 90MW0036 | C | P | 20-Mar-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.19 | 115 | 9.22 | 5.60 | 339.3 | 1.9 |
| | | | 5-May-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 14.14 | 111 | 9.88 | 5.63 | 332.7 | 1.8 |
| | | | 7-Sep-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 17.60 | 107 | 8.60 | 5.54 | 338.0 | 3.9 |
| | | | 14-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.19 | 140 | 9.77 | 5.51 | 168.9 | 0.7 |
| 90MW0040 | F | P | 5-Jan-00 | **6.80** | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.41 | 53 | 10.44 | 6.13 | 187.2 | 12.1 |
| | | | 15-Mar-00 | **7.50** | **11.0** | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.88 | 54 | 11.05 | 6.32 | 414.9 | 5.9 |
| | | | 5-May-00 | **9.80** | **9.4** | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.01 | 54 | 11.48 | 6.23 | 304.3 | 5.0 |
| | | | 13-Sep-00 | **19.00** | **19.0** | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 14.70 | 53 | 10.60 | 6.07 | 311.0 | 6.4 |
| | | | 14-Dec-00 | **22** | **24** | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.17 | 60 | 10.17 | 6.05 | 303.2 | 2.7 |
| 90MW0041 | B | P | 21-Mar-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.20 | 48 | 10.34 | 5.43 | 401.8 | 4.8 |
| | | | 13-Sep-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.40 | 44 | 11.20 | 5.26 | 385.0 | 10.4 |

**Table 5-2**
**Summary of Laboratory Analyses and Field Parameters, FS-12 SPEIM Monitoring Network**
**January - December 2000**

| | | | | Laboratory Analyses | | | | | | | | | | | | | | | | | YSI - Water Quality Meter | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Well Identification | Well Depth Class (1) | Contaminant Monitoring (2) | Date Sampled | EDB (by 504.1) (µg/L) MMCL = 0.02 µg/L | EDB (by OLC 02.1) (µg/L) MMCL = 0.02 µg/L | Benzene (by OLC 02.1) (µg/L) MCL = 5 µg/L | Toluene (by OLC 02.1) (µg/L) MCL = 1,000 µg/L | Ethylbenzene (by OLC 02.1) (µg/L) MCL = 700 µg/L | Xylenes (by OLC 02.1) (µg/L) MCL = 10,000 µg/L | TDS (mg/L) | TSS (mg/L) | Alk (mg/L) | DOC (mg/L) | Total N (µg/L) | $NH_3$ (µg/L) | $NO_3$ (µg/L) | $NO_2$ (µg/L) | Total P (µg/L) | $oPO_4$ (µg/L) | TOC (mg/L) | Temp (°C) | SpC (µS/cm) | DO (mg/L) | pH (std) | ORP (mV) | Turb (NTU) |
| 90MW0042 | D | B | 17-Mar-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 9.76 | 54 | 10.65 | 6.06 | 153.8 | 5.4 |
| | | | 4-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.62 | 53 | 11.60 | 6.14 | 413.3 | 2.0 |
| | | | 13-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.30 | 54 | 10.90 | 6.00 | 367.0 | 4.2 |
| | | | 14-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.39 | 59 | 10.82 | 5.98 | 294.2 | 0.5 |
| 90MW0049 | H | B,AM | 2-May-00 | **0.0200** | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.52 | 74 | 9.46 | 6.69 | 385.5 | 7.7 |
| | | | 6-Sep-00 | 0.009 J | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.20 | 77 | 7.38 | 6.53 | 390.0 | 3.2 |
| | | | 25-Oct-00 | 0.006 J | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.36 | 82 | 6.84 | 6.61 | 347.9 | 5 |
| 90MW0050 | D | P | 17-Feb-00 | **0.0300** | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.93 | 47 | 11.42 | 6.16 | 272.4 | 4.5 |
| | | | 20-Mar-00 | NS | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.13 | 49 | 10.60 | 6.12 | 320.4 | 3.6 |
| | | | 4-May-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.73 | 55 | 10.83 | 6.00 | 427.9 | 2.8 |
| | | | 13-Sep-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.50 | 56 | 9.84 | 6.05 | 510.0 | 1.6 |
| | | | 14-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.38 | 59 | 10.19 | 5.84 | 307.7 | 1.3 |
| 90MW0053 | F | P | 15-Mar-00 | **0.920** | **0.90** | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.25 | 72 | 6.05 | 5.75 | 336.3 | 3.6 |
| | | | 4-May-00 | **1.60** | **1.2** | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.90 | 70 | 6.85 | 5.84 | 401.2 | 6.9 |
| | | | 13-Sep-00 | **1.30** | **1.0** | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 14.40 | 71 | 6.42 | 5.94 | 484.0 | 1.6 |
| | | | 18-Dec-00 | **0.23** | **0.19 J** | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.38 | 83 | 6.45 | 5.73 | 297.4 | 4.2 |
| 90MW0054 | E | B,AM | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.54 | 68 | 9.13 | 5.30 | 381.7 | -0.3 |
| 90MW0055 | G | P | 14-Mar-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.90 | 83 | 0.38 | 6.62 | -54.0 | 11.6 |
| | | | 8-May-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 15.34 | 75 | 0.27 | 6.47 | *-80.1* | 24.6 |
| | | | 13-Sep-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.90 | 78 | 0.16 | 6.69 | 82.8 | 12.1 |
| | | | 14-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.74 | 79 | 0.44 | 6.54 | -37 | 15.8 |
| 90MW0056 | G | B | 15-Mar-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.37 | 121 | 0.00 | 8.55 | -259.7 | 10.0 |
| | | | 4-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.99 | 116 | 0.34 | 7.78 | -264.5 | 11.1 |
| | | | 14-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.70 | 110 | 0.18 | 8.15 | -228.0 | 3.9 |
| | | | 14-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.03 | 109 | 0.28 | 8.4 | -261.3 | 14.3 |
| 90MW0058 | F | B | 10-Nov-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.48 | 132 | 8.68 | 6.5 | 272.9 | 47.4 |
| 90MW0064 | G | B | 16-Mar-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.20 | 60 | 4.75 | 4.30 | 547.6 | 5.9 |
| | | | 10-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.18 | 64 | 6.24 | 6.51 | 375.0 | 6.0 |
| | | | 8-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 15.40 | 63 | 5.96 | 6.47 | 192.0 | 11.4 |
| | | | 11-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.94 | 69 | 6.49 | 6.48 | 259.2 | 7.1 |
| 90MW0064A | B | B | 14-Mar-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.08 | 68 | 7.49 | 5.86 | 214.8 | 0.2 |
| | | | 10-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.52 | 61 | 7.41 | 5.81 | 411.8 | -0.7 |
| | | | 8-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 14.40 | 59 | 6.99 | 5.77 | 250.0 | 0.0 |
| | | | 11-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.19 | 67 | 7.19 | 5.86 | 290.7 | -0.3 |
| 90MW0066 | F | R | 16-Mar-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.59 | 100 | 0.47 | 6.84 | -25.8 | 5.9 |
| | | | 4-May-00 | ND | NS | NS | NS | NS | NS | NS | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.82 | 102 | 0.35 | 6.87 | 103.5 | 3.4 |
| | | | 11-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.80 | 104 | 0.20 | 6.65 | 117.0 | 4.6 |
| | | | 12-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.01 | 112 | 0.13 | 6.93 | -16.8 | 4.1 |
| 90MW0066A | D | R | 16-Mar-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.32 | 80 | 6.93 | 6.30 | 324.2 | 11.9 |
| | | | 4-May-00 | ND | NS | NS | NS | NS | NS | NS | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.58 | 76 | 7.59 | 6.26 | 510.4 | 4.6 |
| | | | 11-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.60 | 76 | 7.71 | 6.29 | 367.0 | 4.1 |
| | | | 12-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.85 | 81 | 7.3 | 6.6 | 408.8 | 1.9 |
| 90MW0068 | D | B | 17-Mar-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.76 | 64 | 6.68 | 5.92 | 146.9 | 7.6 |
| | | | 9-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 15.88 | 67 | 8.30 | 6.01 | 359.7 | 10.2 |
| | | | 12-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.40 | 69 | 6.90 | 5.78 | 345.0 | 7.3 |
| | | | 12-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.77 | 74 | 7.15 | 6.33 | 435.7 | 7.6 |
| 90MW0070 | D | P | 1-Mar-00 | NS | NS | NS | NS | NS | NS | NS | NS | ND | ND | 322 | ND | 271 | ND | ND | NA | 0.51 | 11.95 | 68 | 9.51 | 5.33 | 436.3 | 1.2 |
| | | | 15-Mar-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.43 | 69 | 9.39 | 5.20 | 385.6 | 0.2 |
| | | | 31-Mar-00 | NS | NS | NS | NS | NS | NS | NS | NS | 6.6 | 1.1 | 493 | 66.8 | 397 | ND | 6.5 | 4.3 | 0.5 | 12.35 | 78 | 10.71 | 5.27 | 274.6 | 0.9 |
| | | | 3-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | ND | 1 | 523 | 14.6 | 532 | 0.6 J | 5.7 | 4.1 | ND | 12.95 | 69 | 10.58 | 5.31 | 311.2 | 0.6 |
| | | | 30-May-00 | NS | NS | NS | NS | NS | NS | NS | NS | 5.4 | 0.79 J | 725 | ND | 633 | 0.9 J | 5.3 | 4.4 | 0.62 J | 13.95 | 67 | 9.10 | 5.42 | 291.5 | 0.1 |
| | | | 11-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.40 | 66 | 9.71 | 5.29 | 283.0 | 0.5 |
| | | | 12-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.94 | 116 | 10.54 | 5.38 | 384 | 0.3 |
| 90MW0076 | D | P | 16-Mar-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.61 | 48 | 11.54 | 5.96 | 347.4 | 2.1 |
| | | | 5-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.58 | 62 | 11.32 | 5.81 | 259.9 | 1.3 |
| | | | 11-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.40 | 46 | 11.00 | 5.84 | 229.0 | 0.8 |
| | | | 13-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.22 | 51 | 11.34 | 5.97 | 289.6 | 0 |

**Table 5-2**
**Summary of Laboratory Analyses and Field Parameters, FS-12 SPEIM Monitoring Network**
**January - December 2000**

| Well Identification | Well Depth Class (1) | Contaminant Monitoring (2) | Date Sampled | Laboratory Analyses: EDB (by 504.1) (µg/L) MMCL = 0.02 µg/L | EDB (by OLC 02.1) (µg/L) MMCL = 0.02 µg/L | Benzene (by OLC 02.1) (µg/L) MCL = 5 µg/L | Toluene (by OLC 02.1) (µg/L) MCL = 1,000 µg/L | Ethylbenzene (by OLC 02.1) (µg/L) MCL = 700 µg/L | Xylenes (by OLC 02.1) (µg/L) MCL = 10,000 µg/L | TDS (mg/L) | TSS (mg/L) | Alk (mg/L) | DOC (mg/L) | Total N (µg/L) | $NH_3$ (µg/L) | $NO_3$ (µg/L) | $NO_2$ (µg/L) | Total P (µg/L) | $oPO_4$ (µg/L) | TOC (mg/L) | YSI - Water Quality Meter: Temp (°C) | SpC (µS/cm) | DO (mg/L) | pH (std) | ORP (mV) | Turb (NTU) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0077 | D | B | 17-Feb-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.86 | 58 | 8.04 | 6.20 | 234.4 | 1.0 |
| | | | 11-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.19 | 59 | 7.88 | 6.13 | 268.8 | 0.6 |
| | | | 11-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.40 | 60 | 7.43 | 6.17 | 97.0 | 1.4 |
| | | | 13-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.27 | 67 | 7.14 | 6.02 | 288.2 | 1.6 |
| 90MW0078 | D | B | 14-Mar-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.61 | 81 | 7.61 | 6.22 | 151.5 | 2.4 |
| | | | 8-May-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 14.18 | 88 | 7.75 | 6.16 | 237.5 | 1.8 |
| | | | 11-Sep-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.80 | 72 | 7.47 | 6.31 | 101.0 | 0.6 |
| | | | 13-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.74 | 80 | 7.27 | 6.18 | 283.5 | 0.5 |
| 90MW0079A | C | B | 13-Mar-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.60 | 64 | 8.09 | 6.08 | 192.2 | 0.0 |
| | | | 9-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 15.66 | 64 | 7.64 | 5.98 | 379.9 | 0.2 |
| | | | 8-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 14.40 | 65 | 6.54 | 6.04 | 109.0 | 0.3 |
| | | | 11-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.68 | 105 | 6.92 | 5.91 | 334.2 | 2 |
| 90MW0079B | E | B | 13-Mar-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.18 | 75 | 4.13 | 5.20 | 234.6 | 0.0 |
| | | | 4-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.22 | 75 | 4.21 | 6.07 | 312.8 | 0.1 |
| | | | 8-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.70 | 79 | 4.93 | 6.35 | 76.7 | 0.2 |
| | | | 11-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.6 | 120 | 4.12 | 6.11 | 252.9 | 1 |
| 90MW0079C | F | B | 13-Mar-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.73 | 91 | 0.09 | 7.06 | *-68.0* | 0.0 |
| | | | 4-May-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.21 | 92 | 0.35 | 6.90 | *-129.8* | 29.2 |
| | | | 8-Sep-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.80 | 97 | 0.20 | 6.84 | *-55.6* | 3.8 |
| | | | 11-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.09 | 146 | 0.45 | 7.07 | -65.8 | 17.1 |
| 90MW0080 | E | P | 15-Mar-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.47 | 48 | 10.96 | 5.97 | 442.1 | 0.5 |
| | | | 3-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.94 | 64 | 12.35 | 6.14 | 272.3 | 1.0 |
| | | | 11-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.10 | 49 | 12.10 | 6.03 | 119.0 | 0.2 |
| | | | 13-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 9.87 | 54 | 11.62 | 5.92 | 306.6 | 0.5 |
| 90MW0081 | B | P | 21-Mar-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.13 | 66 | 11.64 | 5.75 | 424.0 | 0.7 |
| | | | 5-May-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 15.01 | 67 | 14.21 | 5.58 | 433.6 | 0.2 |
| | | | 12-Sep-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 15.50 | 69 | 10.40 | 5.17 | 377.0 | 0.2 |
| | | | 13-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.42 | 69 | 10.43 | 5.62 | 311.9 | 0.1 |
| 90MW0083 | B | R | 14-Mar-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.57 | 74 | 8.33 | 5.93 | 197.6 | 0.0 |
| | | | 3-May-00 | ND | NS | NS | NS | NS | NS | NS | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.76 | 67 | 8.06 | 6.01 | 265.9 | 0.5 |
| | | | 12-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 14.80 | 69 | 6.53 | 5.60 | 340.0 | -0.2 |
| | | | 13-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.88 | 78 | 8.39 | 6.17 | 285.6 | NOT READ |
| 90MW0084A | E | B | 21-Mar-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.90 | 77 | 6.53 | 5.38 | 365.2 | 3.0 |
| | | | 4-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.88 | 95 | 6.10 | 6.43 | 254.0 | 3.5 |
| | | | 11-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 14.70 | 79 | 6.59 | 6.57 | 466.0 | 3.0 |
| | | | 11-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.35 | 86 | 6.76 | 6.33 | 265.4 | 3.4 |
| 90MW0084B | B | B | 17-Feb-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.44 | 67 | 7.34 | 5.87 | 213.6 | -0.2 |
| | | | 4-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 14.13 | 74 | 7.50 | 5.79 | 262.0 | 0.1 |
| | | | 11-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 15.00 | 60 | 6.67 | 6.00 | 418.0 | 0.3 |
| | | | 11-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.11 | 68 | 6.58 | 5.87 | 282.3 | 0 |
| 90MW0085A | D | R | 17-Mar-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.77 | 80 | 7.99 | 6.49 | 199.7 | 0.7 |
| | | | 4-May-00 | ND | ND | ND | ND | ND | ND | NS | ND | 22.4 | ND | 50.6 | ND | ND | ND | 57.8 | 53.1 | ND | 13.53 | 90 | 8.31 | 5.95 | 136.6 | 0.4 |
| | | | 11-Sep-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 16.50 | 75 | 9.45 | 6.53 | 451.0 | 2.9 |
| | | | 15-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.8 | 76 | 8.88 | 6.14 | 214.9 | 0.4 |
| 90MW0085B | B | R | 17-Mar-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.87 | 78 | 7.98 | 6.49 | 333.8 | 0.9 |
| | | | 4-May-00 | ND | ND | ND | ND | ND | ND | NS | ND | 21.7 | 1.1 | 70.9 | ND | 74.5 | ND | 14.2 | 10.8 | 0.54 J | 12.90 | 94 | 8.44 | 6.40 | 190.2 | -0.1 |
| | | | 11-Sep-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 16.30 | 71 | 8.41 | 6.48 | 474.0 | 0.5 |
| | | | 15-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.93 | 79 | 9.2 | 6.27 | 326.8 | 0.3 |
| 90MW0086A | G | B | 12-Dec-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.96 | 98 | 0.25 | 6.92 | -32.2 | 10.2 |
| 90MW0086B | G | B | 12-Dec-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.04 | 83 | 0.35 | 6.68 | 128 | 8.7 |
| 90MW0086C | D | B | 5-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.50 | 69 | 10.90 | 6.05 | 231.6 | 2.0 |
| | | | 15-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.00 | 51 | 11.30 | 5.25 | 217.0 | 3.4 |
| | | | 12-Dec-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.06 | 54 | 11.51 | 6.09 | 315.9 | 2.2 |

**Table 5-2**
**Summary of Laboratory Analyses and Field Parameters, FS-12 SPEIM Monitoring Network**
**January - December 2000**

| | | | | Laboratory Analyses | | | | | | | | | | | | | | | | | YSI - Water Quality Meter | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Well Identification | Well Depth Class (1) | Contaminant Monitoring (2) | Date Sampled | EDB (by 504.1) (µg/L) MMCL = 0.02 µg/L | EDB (by OLC 02.1) (µg/L) MMCL = 0.02 µg/L | Benzene (by OLC 02.1) (µg/L) MCL = 5 µg/L | Toluene (by OLC 02.1) (µg/L) MCL = 1,000 µg/L | Ethylbenzene (by OLC 02.1) (µg/L) MCL = 700 µg/L | Xylenes (by OLC 02.1) (µg/L) MCL = 10,000 µg/L | TDS (mg/L) | TSS (mg/L) | Alk (mg/L) | DOC (mg/L) | Total N (µg/L) | $NH_3$ (µg/L) | $NO_3$ (µg/L) | $NO_2$ (µg/L) | Total P (µg/L) | $oPO_4$ (µg/L) | TOC (mg/L) | Temp ($^oC$) | SpC (µS/cm) | DO (mg/L) | pH (std) | ORP (mV) | Turb (NTU) |
| 90MW0086D | B | B | 12-Dec-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.23 | 61 | 11.78 | 5.73 | 323.5 | 0.6 |
| 90MW0087A | E | B | 14-Mar-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.36 | 51 | 10.60 | 6.31 | 128.2 | 4.5 |
| | | | 9-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 15.62 | 50 | 11.17 | 6.20 | 348.9 | 3.7 |
| | | | 14-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.60 | 51 | 11.00 | 5.29 | 276.0 | 3.4 |
| | | | 12-Dec-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.75 | 56 | 10.58 | 6.14 | 307.7 | 3.4 |
| 90MW0087B | B | B | 12-Dec-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.68 | 62 | 11.02 | 5.67 | 333.6 | 1 |
| 90MW0088A | F | B | 20-Mar-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.47 | 51 | 10.82 | 6.30 | 329.3 | 3.3 |
| | | | 10-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.25 | 52 | 10.62 | 6.14 | 429.4 | 3.4 |
| | | | 14-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.00 | 50 | 11.10 | 6.55 | 105.0 | 2.7 |
| | | | 14-Dec-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.27 | 56 | 10.81 | 6.14 | 303.5 | 2.6 |
| 90MW0088B | C | B | 17-Feb-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.74 | 69 | 7.52 | 6.06 | 198.0 | 1.6 |
| | | | 10-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.97 | 62 | 7.68 | 5.93 | 434.4 | 1.4 |
| | | | 14-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.60 | 66 | 6.84 | 6.17 | 108.0 | 0.3 |
| | | | 14-Dec-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.02 | 71 | 7.05 | 5.87 | 297.5 | 1 |
| 90MW0089A | H | B | 12-Dec-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.72 | 125 | 1.56 | 6.63 | 116.1 | 13.2 |
| 90MW0089B | F | B | 14-Mar-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.93 | 57 | 6.94 | 6.10 | 150.4 | 154.3 |
| | | | 9-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.22 | 59 | 7.72 | 6.38 | *-281.0* | 96.5 |
| | | | 11-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.50 | 57 | 8.60 | 6.39 | 336.0 | 38.1 |
| | | | 12-Dec-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.75 | 96 | 8.61 | 6.34 | 142.6 | 23.1 |
| 90MW0089C | E | B | 14-Mar-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.39 | 56 | 10.48 | 6.06 | 167.3 | 2.0 |
| | | | 8-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.99 | 55 | 11.14 | 6.51 | 331.6 | 1.9 |
| | | | 12-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.30 | 57 | 11.00 | 6.58 | 427.0 | 1.4 |
| | | | 11-Dec-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.98 | 59 | 11.28 | 6.56 | 408.8 | 3.8 |
| 90MW0089D | D | B | 16-Mar-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.06 | 49 | 11.39 | 6.09 | 345.9 | 3.4 |
| | | | 8-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.83 | 48 | 12.19 | 6.08 | 367.0 | 2.3 |
| | | | 12-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.70 | 53 | 9.24 | 5.89 | 427.0 | 2.6 |
| | | | 11-Dec-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.19 | 58 | 8.22 | 6.11 | 415.7 | 2.8 |
| 90MW0089E | B | B | 8-Feb-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.44 | 53 | 11.86 | 6.06 | 384.5 | 0.7 |
| | | | 17-Feb-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.66 | 52 | 11.26 | 4.82 | 395.9 | 0.4 |
| | | | 8-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 15.67 | 52 | 11.97 | 5.89 | 383.9 | 1.2 |
| | | | 12-Sep-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.90 | 53 | 10.40 | 5.61 | 413.0 | 0.1 |
| | | | 11-Dec-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.23 | 57 | 8.3 | 5.93 | 434.9 | 0.7 |
| 90MW0089F | A | B | 8-Feb-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.63 | 69 | 11.01 | 5.50 | 363.3 | 0.6 |
| | | | 17-Feb-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.84 | 65 | 11.47 | 5.34 | 417.1 | 0.0 |
| | | | 8-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 14.92 | 73 | 10.06 | 5.34 | 385.6 | -0.6 |
| | | | 12-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.70 | 73 | 9.80 | 5.13 | 447.0 | 1.0 |
| | | | 11-Dec-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.46 | 73 | 10.05 | 5.42 | 470.5 | 0.3 |
| 90MW0090A | G | B | 12-Dec-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.87 | 126 | 0.56 | 6.27 | 292 | 9.3 |
| 90MW0090B | F | B | 15-Mar-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.63 | 59 | 5.38 | 5.91 | 192.9 | 30.6 |
| | | | 9-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 14.01 | 60 | 4.67 | 5.70 | *-272.8* | 27.8 |
| | | | 11-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 14.50 | 59 | 4.89 | 5.70 | 350.0 | 12.1 |
| | | | 12-Dec-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.93 | 118 | 3.94 | 5.5 | 379.1 | 11.5 |
| 90MW0090C | E | B | 15-Mar-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.90 | 58 | 9.58 | 6.23 | 195.1 | 1.0 |
| | | | 8-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 15.40 | 57 | 8.93 | 6.16 | 395.9 | 3.0 |
| | | | 12-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 14.50 | 58 | 8.36 | 6.25 | 217.0 | 1.3 |
| | | | 11-Dec-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.7 | 62 | 8.52 | 6.21 | 267.5 | 1.7 |
| 90MW0090D | D | B | 15-Mar-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.80 | 56 | 10.47 | 6.27 | 193.6 | 0.9 |
| | | | 8-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 16.01 | 54 | 9.17 | 6.24 | 360.9 | 1.4 |
| | | | 12-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 15.60 | 55 | 9.12 | 5.46 | 279.0 | 0.9 |
| | | | 11-Dec-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.02 | 60 | 9.15 | 6.15 | 256.2 | 2.4 |
| 90MW0090E | C | B | 17-Feb-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.29 | 55 | 10.47 | 4.39 | 401.8 | 0.2 |
| | | | 8-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 16.29 | 61 | 10.15 | 5.74 | 399.0 | 0.5 |
| | | | 12-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 16.10 | 67 | 9.04 | 5.17 | 255.0 | 0.2 |
| | | | 11-Dec-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.71 | 73 | 10.23 | 5.58 | 292.7 | 0.1 |
| 90MW0090F | A | B | 17-Feb-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.93 | 62 | 12.42 | 5.32 | 411.2 | 0.7 |
| | | | 8-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 15.17 | 61 | 10.57 | 5.37 | 425.5 | -0.3 |
| | | | 12-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 14.30 | 83 | 8.82 | 5.05 | 302.0 | -0.2 |
| | | | 11-Dec-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.22 | 76 | 10.99 | 5.23 | 313.1 | 0.4 |
| 90MW0091A | G | B | 15-Dec-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.27 | 102 | 0.22 | 6.82 | -62.4 | 5.1 |
| 90MW0091B | F | B | 15-Dec-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.21 | 59 | 8.87 | 6.01 | 329.5 | 17.8 |
| 90MW0091C | E | B | 15-Mar-00 | 0.0084 J | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.48 | 61 | 8.57 | 6.39 | 174.5 | 1.1 |
| | | | 5-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 14.58 | 74 | 10.23 | 6.22 | 385.0 | 0.5 |

**Table 5-2**
**Summary of Laboratory Analyses and Field Parameters, FS-12 SPEIM Monitoring Network**
**January - December 2000**

| | | | | Laboratory Analyses | | | | | | | | | | | | | | | | | YSI - Water Quality Meter | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Well Identification | Well Depth Class (1) | Contaminant Monitoring (2) | Date Sampled | EDB (by 504.1) (µg/L) MMCL = 0.02 µg/L | EDB (by OLC 02.1) (µg/L) MMCL = 0.02 µg/L | Benzene (by OLC 02.1) (µg/L) MCL = 5 µg/L | Toluene (by OLC 02.1) (µg/L) MCL = 1,000 µg/L | Ethylbenzene (by OLC 02.1) (µg/L) MCL = 700 µg/L | Xylenes (by OLC 02.1) (µg/L) MCL = 10,000 µg/L | TDS (mg/L) | TSS (mg/L) | Alk (mg/L) | DOC (mg/L) | Total N (µg/L) | $NH_3$ (µg/L) | $NO_3$ (µg/L) | $NO_2$ (µg/L) | Total P (µg/L) | $oPO_4$ (µg/L) | TOC (mg/L) | Temp (°C) | SpC (µS/cm) | DO (mg/L) | pH (std) | ORP (mV) | Turb (NTU) |
| | | | 11-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.90 | 68 | 8.03 | 6.17 | 319.0 | 10.3 |
| | | | 19-Dec-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.43 | 137 | 7.52 | 6.21 | 199 | 1.4 |
| 90MW0091D | D | B | 19-Dec-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.28 | 136 | 8.4 | 6.06 | 191.1 | 4.4 |
| 90MW0091E | C | B | 3-Jan-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.99 | 58 | 8.45 | 5.53 | 238.4 | 0.4 |
| | | | 14-Dec-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.73 | 105 | 7.33 | 5.73 | 205.1 | 0.3 |
| 90MW0091F | A | B | 3-Jan-00 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.52 | 60 | 9.12 | 5.24 | 277.3 | 0.7 |
| | | | 14-Dec-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.57 | 115 | 8.47 | 5.36 | 235 | 0.3 |
| 90MW0100A-01 | Scr | AM | 31-Oct-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.97 | 96 | 9.44 | 6.32 | 398 | 8.2 |
| 90MW0100A-02 | Scr | AM | 31-Oct-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.54 | 119 | 11.75 | 5.36 | 462 | 15.2 |
| 90MW0100A-03 | Scr | AM | 31-Oct-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.31 | 96 | 12.57 | 5.83 | 436.3 | 8.5 |
| 90MW0100A-04 | Scr | AM | 31-Oct-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.28 | 87 | 12.34 | 5.99 | 132.3 | 17.5 |
| 90MW0100A-05 | Scr | AM | 31-Oct-00 | **1.01** | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.2 | 86 | 11.38 | 6.12 | 432.3 | 64.1 |
| 90MW0100A-06 | Scr | AM | 31-Oct-00 | **0.357** | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.12 | 94 | 10.9 | 6.17 | 421.8 | 17.7 |
| 90MW0100A-07 | Scr | AM | 31-Oct-00 | 0.01 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.34 | 95 | 9.67 | 6.25 | 420.2 | 61.6 |
| 90MW0100A-08 | Scr | AM | 31-Oct-00 | **0.382** | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.12 | 98 | 10.87 | 6.35 | 411.4 | 42.7 |
| 90MW0100A-09 | Scr | AM | 31-Oct-00 | 0.015 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.12 | 95 | 9.81 | 6.5 | 408.4 | 100 |
| 90MW0100A-10 | Scr | AM | 31-Oct-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.17 | 104 | 9.94 | 6.52 | 408 | 88.6 |
| 90MW0100A-11 | Scr | AM | 1-Nov-00 | 0.006 J | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.62 | 75 | 6.09 | 6.86 | 357.7 | 227.9 |
| 90MW0100A-12 | Scr | AM | 1-Nov-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.43 | 67 | 7.64 | 6.77 | 322.4 | 65.5 |
| 90MW0100A-13 | Scr | AM | 1-Nov-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.43 | 67 | 9.46 | 6.67 | 348.2 | 69.5 |
| 90MW0100A-14 | Scr | AM | 1-Nov-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.57 | 67 | 7.92 | 6.71 | 347.2 | 51.2 |
| 90MW0100A-15 | Scr | AM | 1-Nov-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.48 | 73 | 7.35 | 6.66 | 339.2 | 81.9 |
| 90MW0101A-01 | Scr | AM | 7-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.22 | 106 | 8.48 | 6.57 | 230.9 | 54.1 |
| 90MW0101A-02 | Scr | AM | 7-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.23 | 106 | 7.32 | 6.14 | 239.7 | 356.2 |
| 90MW0101A-03 | Scr | AM | 7-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.83 | 66 | 9.68 | 5.56 | 247.6 | 67.1 |
| 90MW0101A-04 | Scr | AM | 7-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.44 | 57 | 5.33 | 5.16 | 266.3 | 147.6 |
| 90MW0101A-05 | Scr | AM | 7-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.43 | 56 | 8.53 | 5.09 | 267.8 | 16.6 |
| 90MW0101A-06 | Scr | AM | 7-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.24 | 61 | 10.92 | 5.18 | 265.9 | 52.8 |
| 90MW0101A-07 | Scr | AM | 8-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.27 | 80 | 10.57 | 6.33 | 158.5 | 10.8 |
| 90MW0101A-08 | Scr | AM | 8-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.27 | 69 | 10.36 | 5.92 | 190 | 18.1 |
| 90MW0101A-09 | Scr | AM | 8-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.67 | 59 | 10.43 | 5.98 | 218 | 54.7 |
| 90MW0101A-10 | Scr | AM | 8-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.32 | 52 | 10.48 | 5.98 | 211 | 15.2 |
| 90MW0101A-11 | Scr | AM | 8-Nov-00 | 0.007 J | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.26 | 71 | 10.2 | 5.94 | 218.4 | 14.1 |
| 90MW0101A-12 | Scr | AM | 8-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.21 | 56 | 10.92 | 6.11 | 211.4 | 13.2 |
| 90MW0101A-13 | Scr | AM | 8-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.49 | 60 | 10.77 | 6.08 | 202.7 | 42.5 |
| 90MW0101A-14 | Scr | AM | 8-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.41 | 52 | 11.13 | 6.11 | 205.8 | 40.9 |
| 90MW0102A-01 | Scr | AM | 10-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.99 | 88 | 8.65 | 6.86 | 272.5 | 3.7 |
| 90MW0102A-02 | Scr | AM | 10-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.04 | 70 | 10.99 | 5.65 | 256.2 | 190.9 |
| 90MW0102A-03 | Scr | AM | 10-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.61 | 87 | 11.16 | 5.57 | 268.2 | 333.6 |
| 90MW0102A-04 | Scr | AM | 10-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.42 | 70 | 11.99 | 5.58 | 284.5 | 20.5 |
| 90MW0102A-05 | Scr | AM | 13-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.67 | 86 | 11.73 | 7.53 | 230.7 | 8.2 |
| 90MW0102A-06 | Scr | AM | 13-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.22 | 91 | 11.27 | 5.96 | 227.7 | 4.7 |
| 90MW0102A-07 | Scr | AM | 13-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.58 | 87 | 12.98 | 5.83 | 210.5 | 23.4 |
| 90MW0102A-08 | Scr | AM | 13-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.57 | 74 | 10.95 | 5.96 | 195.2 | 19.5 |
| 90MW0102A-09 | Scr | AM | 13-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.51 | 71 | 12.28 | 6.04 | 189.9 | 8.9 |
| 90MW0102A-10 | Scr | AM | 13-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.58 | 68 | 12.72 | 6.04 | 197.8 | 4 |
| 90MW0102A-11 | Scr | AM | 13-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.27 | 92 | 13.2 | 5.97 | 201.4 | 12.2 |
| 90MW0102A-12 | Scr | AM | 13-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.36 | 77 | 12.92 | 6.11 | 182.6 | 3.1 |
| 90MW0102A-13 | Scr | AM | 13-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.6 | 62 | 12 | 6.25 | 180.9 | 36.3 |
| 90MW0103A-01 | Scr | AM | 15-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.91 | 70 | 9.34 | 6.89 | 412.8 | 127 |
| 90MW0103A-02 | Scr | AM | 15-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.97 | 58 | 9.89 | 6.1 | 378.4 | 252.4 |
| 90MW0103A-03 | Scr | AM | 15-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.05 | 61 | 9.98 | 6.01 | 403.6 | 8.3 |
| 90MW0103A-04 | Scr | AM | 15-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.65 | 72 | 10.25 | 6.1 | 407 | 31 |

**Table 5-2**
**Summary of Laboratory Analyses and Field Parameters, FS-12 SPEIM Monitoring Network**
**January - December 2000**

| | | | | Laboratory Analyses | | | | | | | | | | | | | | | | | YSI - Water Quality Meter | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Well Identification | Well Depth Class (1) | Contaminant Monitoring (2) | Date Sampled | EDB (by 504.1) (µg/L) MMCL = 0.02 µg/L | EDB (by OLC 02.1) (µg/L) MMCL = 0.02 µg/L | Benzene (by OLC 02.1) (µg/L) MCL = 5 µg/L | Toluene (by OLC 02.1) (µg/L) MCL = 1,000 µg/L | Ethylbenzene (by OLC 02.1) (µg/L) MCL = 700 µg/L | Xylenes (by OLC 02.1) (µg/L) MCL = 10,000 µg/L | TDS (mg/L) | TSS (mg/L) | Alk (mg/L) | DOC (mg/L) | Total N (µg/L) | $NH_3$ (µg/L) | $NO_3$ (µg/L) | $NO_2$ (µg/L) | Total P (µg/L) | $oPO_4$ (µg/L) | TOC (mg/L) | Temp (°C) | SpC (µS/cm) | DO (mg/L) | pH (std) | ORP (mV) | Turb (NTU) |
| 90MW0103A-05 | Scr | AM | 15-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.66 | 73 | 9.77 | 6.35 | 407.3 | 52 |
| 90MW0103A-06 | Scr | AM | 15-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.36 | 75 | 9.78 | 6.47 | 412 | 69.1 |
| 90MW0103A-07 | Scr | AM | 16-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.21 | 80 | 9.21 | 7.04 | 375.6 | 86 |
| 90MW0103A-08 | Scr | AM | 16-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.06 | 76 | 10.75 | 6.72 | 371.8 | 20.3 |
| 90MW0103A-09 | Scr | AM | 16-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.32 | 78 | 9.76 | 6.7 | 380.2 | 24.9 |
| 90MW0103A-10 | Scr | AM | 16-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.86 | 76 | 9.8 | 6.72 | 385.6 | 39 |
| 90MW0103A-11 | Scr | AM | 16-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.11 | 82 | 9.42 | 6.81 | 389.5 | 85.4 |
| 90MW0103A-12 | Scr | AM | 16-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.1 | 86 | 7.17 | 6.95 | 256.6 | 1500.9 |
| 90MW0103A-13 | Scr | AM | 16-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.21 | 70 | 5.95 | 6.59 | 385.9 | 367 |
| 90MW0103A-14 | Scr | AM | 16-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.85 | 63 | 8.89 | 6.89 | 366 | 125.5 |
| 90MW0103A-15 | Scr | AM | 16-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.78 | 61 | 7.82 | 6.94 | 379 | 63.7 |
| 90MW0103A-16 | Scr | AM | 16-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.55 | 61 | 9.97 | 6.91 | 381.3 | 28 |
| 90MW0103A-17 | Scr | AM | 16-Nov-00 | ND | NS | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.82 | 66 | 6.75 | 6.86 | 383.5 | 224.5 |
| 90PZ1-B1 | UN | AM | 25-Oct-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.78 | 73 | 10.12 | 6.13 | 372.6 | 0 |
| 90PZ1-C1 | UN | AM | 2-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.89 | 71 | 9.62 | 6.12 | 138.7 | 7.3 |
| 90PZ0204 | D | AM | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.64 | 55 | 11.52 | 5.71 | 437.3 | 2.5 |
| 90PZ0205 | A | AM | 5-Jan-00 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 8.95 | 47 | 8.05 | 4.91 | 298.8 | 3.3 |
| | | | 31-Jan-00 | NS | NS | NS | NS | NS | NS | NS | NS | ND | ND | 182 | 28.6 | 118 | 0.2 | 9.5 | 3.1 | ND | 9.14 | 60 | 7.21 | 4.87 | 273.6 | 0.7 |
| | | | 1-Mar-00 | NS | NS | NS | NS | NS | NS | NS | NS | ND | 1.7 | 150 | ND | 79.3 | ND | 5.8 | 2.2 | 1.8 | 9.23 | 62 | 5.65 | 5.06 | 410.1 | 1.3 |
| | | | 30-Mar-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.91 | 66 | 5.86 | 4.90 | 466.0 | 1.2 |
| 90RIW0009 | D, E, F | AM, P | 13-Nov-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.2 | 124 | 0.23 | 6.71 | 74.4 | 12.6 |
| | | | 13-Nov-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.51 | 134 | 0.48 | 6.58 | 3.3 | 11.2 |
| 90SNP001 | NA | DP | 19-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 14.27 | 75 | 10.36 | 6.94 | 170.4 | 63.3 |
| | | | 31-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 16.45 | 66 | 10.25 | 6.43 | 248.1 | 199.0 |
| | | | 15-Jun-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 16.96 | 65 | 9.37 | 6.74 | 392.1 | 83.8 |
| | | | 30-Jun-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 19.62 | 99 | 8.85 | 6.73 | 299.8 | 58.9 |
| | | | 14-Jul-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 19.89 | 67 | 8.86 | 6.70 | 231.7 | 64.1 |
| | | | 31-Jul-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 19.66 | 68 | 9.07 | 6.70 | 367.7 | 46.3 |
| | | | 15-Aug-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 21.77 | 66 | 8.73 | 7.21 | 203.5 | 30.5 |
| | | | 31-Aug-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 22.15 | 64 | 8.62 | 7.12 | 296.7 | 38.7 |
| 90SNP002 | NA | DP | 19-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 15.41 | 107 | 1.70 | 6.29 | 197.9 | 916.9 |
| | | | 31-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 18.29 | 98 | 3.51 | 6.04 | 203.8 | 45.3 |
| | | | 15-Jun-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 19.13 | 91 | 2.97 | 6.11 | 409.5 | 45.1 |
| | | | 30-Jun-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 23.20 | 132 | 0.94 | 5.80 | 160.5 | 523.1 |
| | | | 14-Jul-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 24.45 | 97 | 1.86 | 5.95 | 22.1 | 29.9 |
| | | | 31-Jul-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 22.05 | 100 | 2.35 | 6.17 | 305.3 | 34.9 |
| | | | 15-Aug-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 23.02 | 94 | 1.28 | 6.06 | 205.2 | 26.7 |
| | | | 31-Aug-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 23.15 | 91 | 1.21 | 6.03 | 188.8 | 22.1 |
| 90SNP0010 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0011 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0012 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0013 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0014 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0015 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0016 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0017 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0018a | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0018b | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0019 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0020 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0021 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0022 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0023 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0024a | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0024b | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0025 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0026 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0027 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0028 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0029 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0030 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0031 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |

**Table 5-2**
**Summary of Laboratory Analyses and Field Parameters, FS-12 SPEIM Monitoring Network**
**January - December 2000**

| | | | | Laboratory Analyses | | | | | | | | | | | | | | | | | YSI - Water Quality Meter | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Well Identification** | **Well Depth Class (1)** | **Contaminant Monitoring (2)** | **Date Sampled** | **EDB (by 504.1) (µg/L) MMCL = 0.02 µg/L** | **EDB (by OLC 02.1) (µg/L) MMCL = 0.02 µg/L** | **Benzene (by OLC 02.1) (µg/L) MCL = 5 µg/L** | **Toluene (by OLC 02.1) (µg/L) MCL = 1,000 µg/L** | **Ethylbenzene (by OLC 02.1) (µg/L) MCL = 700 µg/L** | **Xylenes (by OLC 02.1) (µg/L) MCL = 10,000 µg/L** | **TDS (mg/L)** | **TSS (mg/L)** | **Alk (mg/L)** | **DOC (mg/L)** | **Total N (µg/L)** | **$NH_3$ (µg/L)** | **$NO_3$ (µg/L)** | **$NO_2$ (µg/L)** | **Total P (µg/L)** | **$oPO_4$ (µg/L)** | **TOC (mg/L)** | **Temp ($^oC$)** | **SpC (µS/cm)** | **DO (mg/L)** | **pH (std)** | **ORP (mV)** | **Turb (NTU)** |
| 90SNP0032 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0033 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0034 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0035 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0036 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0037 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0038 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0039 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0040 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0041 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0042 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0043 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0044 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0045 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0046a | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0046b | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0047 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0048 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0049 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 90SNP0050 | NA | DF | 30-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA |
| 96MW0012 | C | B | 17-Feb-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.59 | 58 | 11.75 | 5.88 | 168.8 | 6.2 |
| | | | 27-Sep-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 14.50 | 89 | 11.20 | 5.75 | 187.0 | 6.8 |
| 96SV0004 | A | P | 20-Mar-00 | **0.280** | ND | ND | **12000** | 500 | 1900 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 14.57 | 255 | 0.71 | 6.61 | *-56.6* | 4.9 |
| | | | 13-Sep-00 | **0.20** | ND | ND | **14000** | 500 J | 2200 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 16.40 | 245 | 0.40 | 6.55 | *-98.3* | 6.0 |
| 96SV0006 | A | P | 20-Mar-00 | ND | ND | ND | 490 | 350 | 430 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 15.37 | 181 | 0.53 | 6.13 | 15.6 | 6.4 |
| | | | 13-Sep-00 | ND | ND | ND | 810 | 500 | 730 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 19.20 | 202 | 0.54 | 6.18 | -1.4 | 7.4 |
| 96SV0013 | A | P | 23-Mar-00 | **0.23** | ND | ND | **2800** | 390 | 2000 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 15.43 | 202 | 0.79 | 6.50 | *-90.9* | 5.2 |
| | | | 14-Sep-00 | **0.14** | ND | **25 J** | **1900** | 370 | 1600 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 16.10 | 192 | 0.49 | 6.50 | *-94.7* | 5.2 |
| ECMWPTP01D | D | NA | 9-May-00 | NS | NS | NS | NS | NS | NS | NS | NS | 13 | 0.76 J | 1190 | ND | 1040 | 0.3 J | 28.4 | NAN | 0.6 J | 14.25 | 135 | 9.96 | 5.96 | 288.1 | 0.4 |
| | | | 20-Sep-00 | NS | NS | NS | NS | NS | NS | NS | NS | 13.6 | 0.53 J | 695 | 8 J | 656 | ND | 19.4 | 16.8 | ND | 15.70 | 111 | 11.20 | 5.95 | 315.0 | 0.4 |
| | | | 10-Nov-00 | NS | NS | NS | NS | NS | NS | NS | NS | 12 | 0.74 J | 738 | ND | 742 | ND | 21 | 16.5 | ND | 12.08 | 114 | 10.81 | 5.95 | 461.8 | -0.4 |
| ECMWPTP01S | A | NA | 9-May-00 | NS | NS | NS | NS | NS | NS | NS | NS | 54.7 | 2.1 | 826 | ND | 660 | 9.4 | 12.8 | NAN | 1.8 | 14.99 | 219 | 0.31 | 5.95 | 267.2 | 1.2 |
| | | | 20-Sep-00 | NS | NS | NS | NS | NS | NS | NS | NS | 44.7 | 1.7 | 135 | 10.5 | 80 | ND | 39.5 | ND | 1.2 | 20.60 | 178 | 1.48 | 5.90 | 240.0 | 2.6 |
| | | | 10-Nov-00 | NS | NS | NS | NS | NS | NS | NS | NS | 44.3 | 1.9 | 316 | ND | ND | 5.3 | 4 | ND | 1.3 | 14.42 | 181 | 1.1 | 5.85 | 454.7 | -0.1 |
| ECMWSNP02D | D | B | 14-Mar-00 | **1.15** | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.30 | 66 | 10.07 | 7.30 | *-66.1* | 3.7 |
| | | | 6-Apr-00 | **0.521** | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.80 | 68 | 14.96 | 7.29 | 8.5 | 4.3 |
| | | | 2-May-00 | **0.112** | ND | ND | ND | ND | ND | NS | NS | 17.8 | 0.58 J | 27.9 J | ND | 39.7 | ND | 46.6 | 41.6 | ND | 10.87 | 80 | 10.53 | 6.65 | *-25.4* | 15.0 |
| | | | 31-May-00 | **0.056** | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.61 | 74 | 9.19 | 6.68 | 133.4 | 0.9 |
| | | | 7-Sep-00 | **0.059** | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.30 | 75 | 14.10 | 7.08 | 4.9 | 4.4 |
| | | | 1-Nov-00 | **0.834** | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.21 | 67 | 8.26 | 7.45 | 83.1 | 1.2 |
| | | | 15-Dec-00 | **0.25 J** | **0.24 J** | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 9.35 | 69 | 12.01 | 7 | 45.7 | 2.9 |
| ECMWSNP02S | B | B | 14-Mar-00 | **0.404** | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.52 | 61 | 11.18 | 6.89 | -5.3 | 1.9 |
| | | | 6-Apr-00 | **0.962** | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.35 | 56 | 10.02 | 6.32 | 95.7 | 2.4 |
| | | | 2-May-00 | **0.938** | **0.800** | ND | ND | ND | ND | NS | NS | ND | 0.99 J | 13.9 J | ND | 5 | ND | 28 | 24.3 | ND | 11.21 | 63 | 10.64 | 6.57 | 100.5 | 4.9 |
| | | | 31-May-00 | **0.139** | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.58 | 58 | 8.80 | 6.36 | 194.0 | 6.4 |
| | | | 7-Sep-00 | **0.109** | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 13.30 | 60 | 8.90 | 6.46 | 318.0 | 17.0 |
| | | | 1-Nov-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.65 | 61 | 8.89 | 6.89 | 260.7 | 230.3 |
| | | | 15-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 9.85 | 54 | 12.56 | 7.09 | 78.7 | 1.3 |

**Table 5-2**
**Summary of Laboratory Analyses and Field Parameters, FS-12 SPEIM Monitoring Network**
**January - December 2000**

| | | | | Laboratory Analyses | | | | | | | | | | | | | | | | | YSI - Water Quality Meter | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Well Identification** | **Well Depth Class (1)** | **Contaminant Monitoring (2)** | **Date Sampled** | **EDB (by 504.1) (µg/L) MMCL = 0.02 µg/L** | **EDB (by OLC 02.1) (µg/L) MMCL = 0.02 µg/L** | **Benzene (by OLC 02.1) (µg/L) MCL = 5 µg/L** | **Toluene (by OLC 02.1) (µg/L) MCL = 1,000 µg/L** | **Ethylbenzene (by OLC 02.1) (µg/L) MCL = 700 µg/L** | **Xylenes (by OLC 02.1) (µg/L) MCL = 10,000 µg/L** | **TDS (mg/L)** | **TSS (mg/L)** | **Alk (mg/L)** | **DOC (mg/L)** | **Total N (µg/L)** | **$NH_3$ (µg/L)** | **$NO_3$ (µg/L)** | **$NO_2$ (µg/L)** | **Total P (µg/L)** | **$oPO_4$ (µg/L)** | **TOC (mg/L)** | **Temp ($^oC$)** | **SpC (µS/cm)** | **DO (mg/L)** | **pH (std)** | **ORP (mV)** | **Turb (NTU)** |
| ECMWSNP03D | D | B | 21-Mar-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 9.42 | 64 | 9.67 | 5.91 | 259.0 | 17.3 |
| | | | 7-Apr-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.90 | 64 | 9.87 | 5.91 | 289.8 | 8.7 |
| | | | 3-May-00 | ND | ND | ND | ND | ND | ND | NS | NS | ND | 0.85 J | 44.7 | 11.1 | 32.2 | 1 J | 25.5 | 20.3 | ND | 11.39 | 71 | 11.42 | 5.75 | 147.7 | 4.1 |
| | | | 31-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 15.07 | 67 | 6.28 | 5.83 | 142.8 | 12.9 |
| | | | 7-Sep-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 15.60 | 63 | 8.33 | 6.35 | 175.0 | 16.2 |
| | | | 1-Nov-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.32 | 65 | 7.87 | 6.37 | 173.8 | 1500.4 |
| | | | 15-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 9.72 | 66 | 10.38 | 6.39 | 75.1 | 120.3 |
| ECMWSNP03S | B | B | 21-Mar-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 8.51 | 57 | 8.46 | 6.73 | *-49.1* | 7.6 |
| | | | 7-Apr-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 11.09 | 57 | 8.67 | 6.54 | 17.1 | 2.7 |
| | | | 3-May-00 | ND | ND | ND | ND | ND | ND | NS | NS | ND | 1.2 | 176 | ND | ND | 2.4 J | 12.2 | 1.7 J | 1.2 | 11.51 | 65 | 9.60 | 6.56 | 80.5 | 8.4 |
| | | | 31-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.41 | 66 | 9.04 | 5.62 | 257.8 | 30.9 |
| | | | 7-Sep-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 14.40 | 63 | 7.96 | 6.15 | 309.0 | 0.7 |
| | | | 1-Nov-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 12.15 | 67 | 8.91 | 6.21 | 238.5 | 0.2 |
| | | | 15-Dec-00 | ND | ND | ND | ND | ND | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 10.32 | 66 | 11.62 | 6.51 | 116 | 0 |
| ECMWTRP01D | C | NA | 9-May-00 | NS | NS | NS | NS | NS | NS | NS | NS | 12.9 | 0.87 J | 52.6 | ND | 58.3 | 2.1 J | 36.8 | NAN | 0.52 J | 13.24 | 101 | 10.02 | 5.73 | 271.2 | 3.0 |
| | | | 20-Sep-00 | NS | NS | NS | NS | NS | NS | NS | NS | 12.6 | ND | 54.1 | 13.8 | ND | ND | 26.1 | 23.1 | ND | 12.80 | 83 | 10.50 | 5.67 | 316.0 | 1.6 |
| ECMWTRP01S | A | NA | 9-May-00 | NS | NS | NS | NS | NS | NS | NS | NS | 4.7 J | 1.1 | 63.5 | ND | 8.7 | 1 J | 11.6 | NAN | ND | 14.08 | 237 | 11.06 | 5.21 | 297.0 | -0.1 |
| | | | 20-Sep-00 | NS | NS | NS | NS | NS | NS | NS | NS | 4.3 J | 0.67 J | 32.9 | 6.9 J | 3.6 | ND | 4 | ND | 0.63 J | 12.80 | 295 | 11.10 | 5.23 | 334.0 | -0.3 |
| ECPZSNP01 | A | AM | 2-May-00 | ND | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 9.46 | 298 | 0.59 | 5.47 | 451.3 | 0.3 |

Data Source (01 October 2000 - 31 December 2000): AFCEE, 29 January 2001, MMR-AFCEE Data Warehouse; data source for previous quarters outlined in quarterly reports.

The accuracy of the YSI readings are as follows: temperature (+/- 0.15%), specific conductivity (+/- 0.5% of reading plus 1 µS/cm), DO (for instrument readings 0-20 mg/L, +/- 0.2 mg/L or for instrument readings 20-50 mg/L, +/- 0.6 mg/L), pH (+/- 0.2 units), ORP (+/- 20 mV), turbidity (the greater of +/- 5% of reading or +/- 2 NTU).

**(1) Well Depth Class**
A = screen above 40 ft msl
B = screen between 20 and 40 ft msl
C = screen between 0 and 20 ft msl
D = screen between 0 and -20 ft msl
E = screen between -20 and -40 ft msl
F = screen between -40 and -60 ft msl
G = screen between -60 and -80 ft msl
H = screen below -80 ft msl
Scr = screening sample during drilling

**(2) Contaminant Monitoring**
AM = additional monitoring for EDB plume
B = plume breakthrough
DF = USGS diffusion sampling
DP = drive-point sampling
E = extraction well
P = plume extent
R = plume reinjection impact monitoring

**Units of Measure**
$^oC$ = degrees Celsius
ft msl = feet mean sea level
mg/L = milligrams per liter
mV = millivolts
NTU = nephelometric turbidity units
std = standard units
µg/L = micrograms per liter
µS/cm = microsiemens per centimeter

**Laboratory Analyses**
Alk = alkalinity
EDB = ethylene dibromide
DOC = dissolved organic carbon
$NH_3$ = ammonia
$NO_3$ = nitrate
$NO_2$ = nitrite
$oPO_4$ = orthophosphate
TDS = total dissolved solids
TOC = total organic carbon
Total N = total nitrogen
Total P = total phosphorus
TSS = total suspended solids

**YSI - Water Quality Meter**
DO = dissolved oxygen
ORP = oxidation-reduction potential
SpC = specific conductivity
Temp = temperature
Turb = turbidity

Negative turbidity measurements indicate instrument drift.

*Italicized ORP values* = Based on high levels of DO, these ORP values are suspect.

**Miscellaneous**
J = estimated value
MCL = EPA maximum contaminant level
MMCL = Massachusetts maximum contaminant level
NA = not applicable
NAN = data unable to be analyzed by the lab
ND = not detected above the method detection limit
NS = not sampled
UN = unknown
USGS = U.S. Geological Survey
YSI = Yellow Springs Instruments, Inc.
**Boldface** values indicate MCL or MMCL exceedances.

## Table 5-3
## FS-12 Groundwater Descriptive Statistics for Physicochemical Parameters

### Alkalinity (mg/L)

| Rel Location | n | mean | sd | min | max | LCL | UCL |
|---|---|---|---|---|---|---|---|
| Upgradient | 11 | 12.6 | 12.4 | 0.0 | 27.0 | 4.3 | 20.9 |
| Downgradient | 13 | 9.0 | 10.2 | 0.0 | 22.4 | 2.8 | 15.1 |
| Reference | 10 | 21.7 | 18.6 | 4.3 | 54.7 | 8.4 | 35.0 |

### Total Phosphorus (µg/L)

| Rel Location | n | mean | sd | min | max | LCL | UCL |
|---|---|---|---|---|---|---|---|
| Upgradient | 11 | 42.8 | 39.7 | 0.0 | 109.0 | 16.1 | 64.5 |
| Downgradient | 13 | 28.3 | 17.5 | 5.8 | 57.8 | 17.7 | 38.9 |
| Reference | 10 | 20.4 | 12.5 | 4.0 | 39.5 | 11.4 | 29.3 |

### Total Orthophosphate (µg/L)

| Rel Location | n | mean | sd | min | max | LCL | UCL |
|---|---|---|---|---|---|---|---|
| Upgradient | 10 | 42.4 | 35.9 | 4.1 | 99.2 | 16.8 | 68.1 |
| Downgradient | 13 | 23.2 | 17.8 | 1.7 | 53.1 | 12.5 | 34.0 |
| Reference | 6 | 9.4 | 10.6 | 0.0 | 23.1 | -1.7 | 20.5 |

### Ammonia (µg/L)

| Rel Location | n | mean | sd | min | max | LCL | UCL |
|---|---|---|---|---|---|---|---|
| Upgradient | 11 | 76.6 | 89.0 | 0.0 | 293.0 | 16.8 | 136.4 |
| Downgradient | 13 | 4.1 | 8.3 | 0.0 | 28.6 | -0.9 | 9.1 |
| Reference | 10 | 3.9 | 5.4 | 0.0 | 13.8 | 0.1 | 7.8 |

### Nitrate (µg/L)

| Rel Location | n | mean | sd | min | max | LCL | UCL |
|---|---|---|---|---|---|---|---|
| Upgradient | 11 | 185 | 235 | 0 | 633 | 27 | 343 |
| Downgradient | 13 | 53 | 46 | 0 | 154 | 25 | 81 |
| Reference | 10 | 325 | 402 | 0 | 1040 | 37 | 612 |

### Nitrogen (µg/L)

| Rel Location | n | mean | sd | min | max | LCL | UCL |
|---|---|---|---|---|---|---|---|
| Upgradient | 11 | 307 | 217 | 54 | 725 | 161 | 453 |
| Downgradient | 13 | 82 | 79 | 0 | 249 | 34 | 130 |
| Reference | 10 | 410 | 418 | 33 | 1190 | 111 | 709 |

### Dissolved Organic Carbon (mg/L)

| Rel Location | n | mean | sd | min | max | LCL | UCL |
|---|---|---|---|---|---|---|---|
| Upgradient | 11 | 0.7 | 0.6 | 0.0 | 1.6 | 0.3 | 1.1 |
| Downgradient | 13 | 0.8 | 0.6 | 0.0 | 1.7 | 0.4 | 1.1 |
| Reference | 10 | 1.0 | 0.7 | 0.0 | 2.1 | 0.6 | 1.5 |

### Total Organic Carbon (mg/L)

| Rel Location | n | mean | sd | min | max | LCL | UCL |
|---|---|---|---|---|---|---|---|
| Upgradient | 36 | 0.5 | 0.4 | 0.0 | 1.5 | 0.4 | 0.6 |
| Downgradient | 13 | 0.4 | 0.7 | 0.0 | 1.8 | 0.0 | 0.8 |
| Reference | 10 | 0.6 | 0.6 | 0.0 | 1.8 | 0.1 | 1.1 |

### Suspended Solids (mg/L)

| Rel Location | n | mean | sd | min | max | LCL | UCL |
|---|---|---|---|---|---|---|---|
| Upgradient | 26 | 1 | 2 | 0 | 12 | 0 | 1 |
| Downgradient | 27 | 2 | 5 | 0 | 16 | 0 | 4 |
| Reference | No data | | | | | | |

Data Source: AFCEE,01 February 2001, MMR-AFCEE Data Warehouse

LCL = 95% Lower Confidence Level
max = maximum value observed
mg/L = milligrams per liter
min = minimum value observed
n = number of observations
rel = relative
sd = standard deviation of population
UCL = 95% Upper Confidence Level
µg/L = micrograms per liter

## Table 5-4
## Maximum Detected Concentrations in Groundwater at FS-12
## Compared to Drinking Water Standards, January - December 2000

| Well Identification | Analyte | Date Sampled | Max Concentration | Q | Units | Standard (µg/L) | Type | Rationale |
|---|---|---|---|---|---|---|---|---|
| 90EW0007 | 1,2-DIBROMOETHANE (EDB) | 15-Dec-00 | 0.04 | | µg/L | 0.02 | MMCL | Used to monitor extraction well concentrations. |
| 90EW0008 | 1,2-DIBROMOETHANE (EDB) | 11-May-00 | 0.75 | | µg/L | 0.02 | MMCL | Used to monitor extraction well concentrations. |
| 90EW0009 | 1,2-DIBROMOETHANE (EDB) | 16-May-00 | 4.8 | | µg/L | 0.02 | MMCL | Used to monitor extraction well concentrations. |
| 90EW0009 | BENZENE | 16-May-00 | 77 | | µg/L | 5 | MCL, MMCL | Used to monitor extraction well concentrations. |
| 90EW0009 | MANGANESE (TOTAL) | 16-May-00 | 63.1 | | µg/L | 50 | SMCL | Used to monitor extraction well concentrations. |
| 90EW0010 | 1,2-DIBROMOETHANE (EDB) | 12-May-00 | 1.5 | | µg/L | 0.02 | MMCL | Used to monitor extraction well concentrations. |
| 90EW0010 | BENZENE | 12-May-00 | 46 | | µg/L | 5 | MCL, MMCL | Used to monitor extraction well concentrations. |
| 90EW0010 | MANGANESE (TOTAL) | 12-May-00 | 242 | | µg/L | 50 | SMCL | Used to monitor extraction well concentrations. |
| 90EW0011 | 1,2-DIBROMOETHANE (EDB) | 12-May-00 | 4.4 | | µg/L | 0.02 | MMCL | Used to monitor extraction well concentrations. |
| 90EW0011 | BENZENE | 12-May-00 | 28 | | µg/L | 5 | MCL, MMCL | Used to monitor extraction well concentrations. |
| 90EW0011 | MANGANESE (TOTAL) | 12-May-00 | 158 | | µg/L | 50 | SMCL | Used to monitor extraction well concentrations. |
| 90EW0012 | 1,2-DIBROMOETHANE (EDB) | 12-May-00 | 31 | | µg/L | 0.02 | MMCL | Used to monitor extraction well concentrations. |
| 90EW0012 | BENZENE | 12-May-00 | 110 | | µg/L | 5 | MCL, MMCL | Used to monitor extraction well concentrations. |
| 90EW0012 | MANGANESE (TOTAL) | 12-May-00 | 114 | | µg/L | 50 | SMCL | Used to monitor extraction well concentrations. |
| 90EW0013 | 1,2-DIBROMOETHANE (EDB) | 12-May-00 | 14 | | µg/L | 0.02 | MMCL | Used to monitor extraction well concentrations. |
| 90EW0013 | BENZENE | 12-May-00 | 77 | | µg/L | 5 | MCL, MMCL | Used to monitor extraction well concentrations. |
| 90EW0013 | MANGANESE (TOTAL) | 12-May-00 | 59.6 | | µg/L | 50 | SMCL | Used to monitor extraction well concentrations. |
| 90EW0014 | 1,2-DIBROMOETHANE (EDB) | 12-May-00 | 2.5 | | µg/L | 0.02 | MMCL | Used to monitor extraction well concentrations. |
| 90EW0015 | 1,2-DIBROMOETHANE (EDB) | 15-May-00 | 3.9 | | µg/L | 0.02 | MMCL | Used to monitor extraction well concentrations. |
| 90EW0015 | MANGANESE (TOTAL) | 15-May-00 | 64.8 | | µg/L | 50 | SMCL | Used to monitor extraction well concentrations. |
| 90EW0016 | 1,2-DIBROMOETHANE (EDB) | 15-May-00 | 8.7 | | µg/L | 0.02 | MMCL | Used to monitor extraction well concentrations. |
| 90EW0017 | 1,2-DIBROMOETHANE (EDB) | 15-May-00 | 13 | | µg/L | 0.02 | MMCL | Used to monitor extraction well concentrations. |
| 90EW0018 | 1,2-DIBROMOETHANE (EDB) | 15-May-00 | 6.7 | | µg/L | 0.02 | MMCL | Used to monitor extraction well concentrations. |
| 90EW0018 | BENZENE | 15-May-00 | 21 | | µg/L | 5 | MCL, MMCL | Used to monitor extraction well concentrations. |
| 90EW0018 | MANGANESE (TOTAL) | 15-May-00 | 82.5 | | µg/L | 50 | SMCL | Used to monitor extraction well concentrations. |
| 90EW0019 | 1,2-DIBROMOETHANE (EDB) | 15-May-00 | 23 | | µg/L | 0.02 | MMCL | Used to monitor extraction well concentrations. |
| 90EW0024 | 1,2-DIBROMOETHANE (EDB) | 16-May-00 | 0.24 | | µg/L | 0.02 | MMCL | Used to monitor extraction well concentrations. |
| 90EW0025 | 1,2-DIBROMOETHANE (EDB) | 16-May-00 | 0.76 | | µg/L | 0.02 | MMCL | Used to monitor extraction well concentrations. |
| 90EW0026 | 1,2-DIBROMOETHANE (EDB) | 17-May-00 | 1.5 | | µg/L | 0.02 | MMCL | Used to monitor extraction well concentrations. |
| 90EW0027 | 1,2-DIBROMOETHANE (EDB) | 20-Dec-00 | 2.2 | J | µg/L | 0.02 | MMCL | Used to monitor extraction well concentrations. |
| 90EW0028 | 1,2-DIBROMOETHANE (EDB) | 17-May-00 | 4.3 | | µg/L | 0.02 | MMCL | Used to monitor extraction well concentrations. |
| 90EW0029 | 1,2-DIBROMOETHANE (EDB) | 17-May-00 | 1.4 | | µg/L | 0.02 | MMCL | Used to monitor extraction well concentrations. |
| 90MP0059B | 1,2-DIBROMOETHANE (EDB) | 25-Oct-00 | 0.031 | | µg/L | 0.02 | MMCL | Used for definition of the FS-12 plumelet. |

**Table 5-4**
**Maximum Detected Concentrations in Groundwater at FS-12**
**Compared to Drinking Water Standards, January - December 2000**

| Well Identification | Analyte | Date Sampled | Max Concentration | Q | Units | Standard (µg/L) | Type | Rationale |
|---|---|---|---|---|---|---|---|---|
| 90MP0060A | 1,2-DIBROMOETHANE (EDB) | 06-Sep-00 | 0.349 | | µg/L | 0.02 | MMCL | Used for definition of the FS-12 plumelet. |
| 90MP0060D | NICKEL (TOTAL) | 03-Jan-00 | 328 | | µg/L | 100 | ORSG | Used for plume definition monitoring on the east side of Snake Pond and to monitor quality of groundwater entering Snake Pond downgradient of the axial ETR. |
| 90MW0001 | BENZENE | 12-Sep-00 | 34 | | µg/L | 5 | MCL, MMCL | Used for source area monitoring of FS-12 plume. |
| 90MW0003 | 1,2-DIBROMOETHANE (EDB) | 04-May-00 | 0.031 | | µg/L | 0.02 | MMCL | Used for plume definition in the body of the FS-12 plume. |
| 90MW0003 | BENZENE | 14-Mar-00 | 64 | | µg/L | 5 | MCL, MMCL | Used for plume definition in the body of the FS-12 plume. |
| 90MW0003 | IRON (TOTAL) | 14-Mar-00 | 1390 | | µg/L | 300 | SMCL | Used for plume definition in the body of the FS-12 plume. |
| 90MW0003 | MANGANESE (TOTAL) | 11-Dec-00 | 255 | | µg/L | 50 | SMCL | Used for plume definition in the body of the FS-12 plume. |
| 90MW0005 | 1,2-DIBROMOETHANE (EDB) | 04-May-00 | 3.5 | | µg/L | 0.02 | MMCL | Used for plume definition and flow in the body of the FS-12 plume. |
| 90MW0005 | BENZENE | 04-May-00 | 29 | | µg/L | 5 | MCL, MMCL | Used for plume definition and flow in the body of the FS-12 plume. |
| 90MW0005 | MANGANESE (TOTAL) | 11-Dec-00 | 336 | | µg/L | 50 | SMCL | Used for plume definition and flow in the body of the FS-12 plume. |
| 90MW0015 | CADMIUM (TOTAL) | 07-Sep-00 | 13.3 | | µg/L | 5 | MCL, MMCL | Used for plume definition in the central portion of the plume, vertical gradients and groundwater flow on the north side of Snake Pond, and monitoring quality of groundwater entering Snake Pond downgradient of the ETR. |
| 90MW0020 | 1,2-DIBROMOETHANE (EDB) | 13-Dec-00 | 0.35 | | µg/L | 0.02 | MMCL | Used for plume definition in the central portion of the plume and to monitor plume groundwater quality. |
| 90MW0020 | BENZENE | 03-May-00 | 750 | | µg/L | 5 | MCL, MMCL | Used for plume definition in the central portion of the plume and to monitor plume groundwater quality. |
| 90MW0020 | IRON (TOTAL) | 03-May-00 | 1290 | | µg/L | 300 | SMCL | Used for plume definition in the central portion of the plume and to monitor plume groundwater quality. |
| 90MW0020 | MANGANESE (TOTAL) | 03-May-00 | 298 | | µg/L | 50 | SMCL | Used for plume definition in the central portion of the plume and to monitor plume groundwater quality. |
| 90MW0024 | 1,2-DIBROMOETHANE (EDB) | 14-Sep-00 | 0.13 | | µg/L | 0.02 | MMCL | Used for groundwater flow monitoring along the east-central edge of the plume. |
| 90MW0025 | 1,2-DIBROMOETHANE (EDB) | 13-Dec-00 | 0.12 | | µg/L | 0.02 | MMCL | Used for plume definition in the southern core of the plume. |
| 90MW0028 | 1,2-DIBROMOETHANE (EDB) | 14-Mar-00 | 7.8 | | µg/L | 0.02 | MMCL | Used for plume definition along the southeastern portion of the FS-12 plume. |
| 90MW0032 | 1,2-DIBROMOETHANE (EDB) | 13-Sep-00 | 0.099 | | µg/L | 0.02 | MMCL | Used to monitor eastern FS-12 plume boundary. |
| 90MW0033 | ALUMINUM (TOTAL) | 14-Dec-00 | 893 | | µg/L | 200 | SMCL | Used for plume definition along the eastern side of the FS-12 plume. |

**Table 5-4**
**Maximum Detected Concentrations in Groundwater at FS-12**
**Compared to Drinking Water Standards, January - December 2000**

| Well Identification | Analyte | Date Sampled | Max Concentration | Q | Units | Standard (µg/L) | Type | Rationale |
|---|---|---|---|---|---|---|---|---|
| 90MW0033 | IRON (TOTAL) | 14-Dec-00 | 1350 | | µg/L | 300 | SMCL | Used for plume definition along the eastern side of the FS-12 plume. |
| 90MW0040 | 1,2-DIBROMOETHANE (EDB) | 14-Dec-00 | 22 | | µg/L | 0.02 | MMCL | Used for plume definition at the southern edge of the core of the FS-12 plume. |
| 90MW0049 | 1,2-DIBROMOETHANE (EDB) | 02-May-00 | 0.02 | | µg/L | 0.02 | MMCL | Used for definition of the FS-12 plumelet. |
| 90MW0050 | 1,2-DIBROMOETHANE (EDB) | 17-Feb-00 | 0.03 | | µg/L | 0.02 | MMCL | Used for plume definition southwest of the FS-12 plume and northeast of Snake Pond. |
| 90MW0053 | 1,2-DIBROMOETHANE (EDB) | 04-May-00 | 1.6 | | µg/L | 0.02 | MMCL | Used for FS-12 plume definition along the southern extraction fence. |
| 90MW0053 | IRON (TOTAL) | 13-Sep-00 | 489 | | µg/L | 300 | SMCL | Used for FS-12 plume definition along the southern extraction fence. |
| 90MW0055 | IRON (TOTAL) | 13-Sep-00 | 1120 | | µg/L | 300 | SMCL | Used for FS-12 plume extent monitoring under the southern extraction fence. |
| 90MW0055 | MANGANESE (TOTAL) | 13-Sep-00 | 76.8 | | µg/L | 50 | SMCL | Used for FS-12 plume extent monitoring under the southern extraction fence. |
| 90MW0056 | MANGANESE (TOTAL) | 14-Sep-00 | 119 | | µg/L | 50 | SMCL | Used for FS-12 plume extent monitoring under the southern extraction fence. |
| 90MW0066 | ANTIMONY (TOTAL) | 11-Sep-00 | 6.2 | | µg/L | 6 | MMCL | Used to monitor for FS-12 plume breakthrough and reinjection water quality along the southern reinjection fence. |
| 90MW0066 | IRON (TOTAL) | 12-Dec-00 | 1940 | | µg/L | 300 | SMCL | Used to monitor for FS-12 plume breakthrough and reinjection water quality along the southern reinjection fence. |
| 90MW0066 | MANGANESE (TOTAL) | 12-Dec-00 | 179 | | µg/L | 50 | SMCL | Used to monitor for FS-12 plume breakthrough and reinjection water quality along the southern reinjection fence. |
| 90MW0070 | MANGANESE (TOTAL) | 11-Sep-00 | 54.7 | | µg/L | 50 | SMCL | Used for plume definition and extent along the west-central edge of the FS-12 plume. |
| 90MW0079C | IRON (TOTAL) | 08-Sep-00 | 876 | | µg/L | 300 | SMCL | Used for plume extent monitoring under the southern extraction fence. |
| 90MW0079C | MANGANESE (TOTAL) | 08-Sep-00 | 111 | | µg/L | 50 | SMCL | Used for plume extent monitoring under the southern extraction fence. |
| 90MW0100A | 1,2-DIBROMOETHANE (EDB) | 31-Oct-00 | 1.01 | | µg/L | 0.02 | MMCL | Used to monitor the plumelet on the eastern shore of Snake Pond. |
| 96SV0004 | 1,2-DIBROMOETHANE (EDB) | 20-Mar-00 | 0.28 | | µg/L | 0.02 | MMCL | Used to monitor the source area of the FS-12 plume. |
| 96SV0004 | TOLUENE | 13-Sep-00 | 14000 | | mg/L | 1000 | MMCL | Used to monitor the source area of the FS-12 plume. |
| 96SV0013 | 1,2-DIBROMOETHANE (EDB) | 23-Mar-00 | 0.23 | | µg/L | 0.02 | MMCL | Used to monitor the source area of the FS-12 plume. |
| 96SV0013 | BENZENE | 14-Sep-00 | 25 | J | µg/L | 5 | MCL, MMCL | Used to monitor the source area of the FS-12 plume. |
| 96SV0013 | TOLUENE | 23-Mar-00 | 2800 | | µg/L | 1000 | MMCL | Used to monitor the source area of the FS-12 plume. |

**Table 5-4**
**Maximum Detected Concentrations in Groundwater at FS-12**
**Compared to Drinking Water Standards, January - December 2000**

| Well Identification | Analyte | Date Sampled | Max Concentration | Q | Units | Standard (µg/L) | Type | Rationale |
|---|---|---|---|---|---|---|---|---|
| ECMWSNP02D | 1,2-DIBROMOETHANE (EDB) | 14-Mar-00 | 1.15 | | µg/L | 0.02 | MMCL | Used to monitor quality of groundwater entering Snake Pond downgradient of the ETR system. This sample was collected by Ogden Environmental in September 1999. |
| ECMWSNP02S | 1,2-DIBROMOETHANE (EDB) | 06-Apr-00 | 0.962 | | µg/L | 0.02 | MMCL | Used to monitor quality of groundwater entering Snake Pond downgradient of the ETR system. |

Data Source: AFCEE, 01 February 2001, MMR-AFCEE Data Warehouse

ETR = extraction, treatment, reinjection
J = estimated value
max = maximum
MCL = U.S. Environmental Protection Agency maximum contaminant level
mg/L = milligrams per liter
MMCL = Massachusetts maximum contaminant level drinking water regulations (310 CMR 22.00) issued by the Massachusetts Department of Environmental Protection
NA = not available
Q = data qualifier
SMCL = secondary maximum contaminant level standards developed to protect the aesthetic qualities of drinking water
µg/L = micrograms per liter

## Table 5-5
## Correlation Matrix of 1996-2000 FS-12 Groundwater Data

| | EDB (by 504.1) | 1,2-Dichloroethane | Acetone | Benzene | Chloroform | Ethylbenzene | Toluene | Alkalinity | DOC | Total N | $NH_3$ | $NO_3$ | $NO_2$ | $oPO_4$ | TSS | TDS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EDB (by 504.1) | 1.000 (1384) | | | | | | | | | | | | | | | |
| 1,2-Dichloroethane | 0.610 (870) | 1.000 (1069) | | | | | | | | | | | | | | |
| Acetone | -0.151 (12) | -0.070 (31) | 1.000 (31) | | | | | | | | | | | | | |
| Benzene | 0.608 (1010) | 0.456 (1067) | -0.074 (30) | 1.000 (1390) | | | | | | | | | | | | |
| Chloroform | -0.143 (870) | -0.046 (1067) | -0.258 (31) | -0.148 (1065) | 1.000 (1067) | | | | | | | | | | | |
| Ethylbenzene | 0.008 (1010) | 0.000 (1068) | -0.058 (31) | -0.005 (1390) | -0.078 (1066) | 1.000 (1391) | | | | | | | | | | |
| Toluene | 0.050 (1010) | -0.004 (1068) | -0.054 (31) | -0.007 (1390) | -0.048 (1066) | 0.720 (1391) | 1.000 (1391) | | | | | | | | | |
| Alkalinity | 0.375 (74) | 0.164 (103) | 0.133 (16) | 0.388 (102) | -0.268 (101) | 0.481 (103) | 0.557 (103) | 1.000 (273) | | | | | | | | |
| DOC | 0.112 (50) | -- (55) | -- (1) | -0.147 (55) | 0.063 (55) | -- (55) | -- (55) | 0.123 (212) | 1.000 (220) | | | | | | | |
| Total N | -0.104 (33) | -- (36) | -- (1) | 0.110 (36) | 0.221 (36) | -- (36) | -- (36) | 0.101 (171) | 0.030 (174) | 1.000 (183) | | | | | | |
| $NH_3$ | 0.063 (50) | -0.024 (75) | 0.969 (16) | 0.762 (74) | -0.142 (75) | -0.031 (75) | -0.028 (75) | 0.221 (239) | 0.204 (211) | 0.170 (177) | 1.000 (253) | | | | | |
| $NO_3$ | -0.129 (67) | -- (74) | -- (1) | -0.178 (74) | 0.120 (72) | -- (74) | -- (74) | 0.060 (222) | 0.084 (198) | 0.084 (176) | -0.100 (199) | 1.000 (233) | | | | |
| $NO_2$ | 0.173 (48) | -- (53) | -- (1) | 0.361 (53) | -0.226 (53) | -- (53) | -- (53) | 0.350 (205) | 0.026 (211) | 0.117 (176) | 0.577 (213) | -0.112 (198) | 1.000 (220) | | | |
| $oPO_4$ | -0.065 (45) | -0.091 (67) | 0.972 (16) | 0.409 (66) | -0.239 (67) | -0.127 (67) | -0.120 (67) | 0.256 (217) | -0.001 (190) | 0.141 (170) | 0.575 (223) | -0.127 (192) | 0.941 (193) | 1.000 (229) | | |
| TSS | 0.009 (168) | -0.033 (162) | -- (5) | 0.000 (162) | 0.026 (162) | -- (162) | -- (162) | -0.036 (130) | -0.104 (106) | -0.029 (69) | -0.045 (109) | -0.102 (117) | -0.152 (107) | -0.176 (92) | 1.000 (251) | |
| TDS | 0.079 (80) | -0.005 (89) | -- (5) | 0.202 (89) | -0.163 (87) | -- (89) | -- (89) | 0.277 (127) | 0.063 (99) | -0.351 (64) | -0.085 (104) | 0.178 (113) | 0.003 (102) | -0.057 (87) | 0.074 (149) | 1.000 (158) |
| TOC | 0.570 (78) | 0.102 (100) | -0.209 (21) | -0.059 (99) | -0.074 (100) | 0.691 (100) | 0.661 (100) | 0.354 (232) | 0.557 (207) | 0.085 (161) | 0.198 (231) | 0.014 (186) | 0.124 (198) | -0.047 (207) | -0.112 (126) | -0.193 (114) |
| Aluminum | -0.035 (435) | -0.016 (449) | -0.074 (24) | -0.041 (448) | 0.077 (447) | -0.013 (449) | -0.014 (449) | -0.091 (102) | 0.091 (54) | -0.171 (28) | -0.027 (78) | -0.005 (64) | -0.051 (52) | -0.090 (62) | 0.020 (181) | -0.065 (97) |
| Antimony | 0.023 (427) | -0.010 (445) | -- (24) | 0.115 (444) | -0.045 (443) | -0.007 (445) | -0.010 (445) | -0.017 (101) | -- (54) | -- (28) | -- (77) | -0.050 (64) | -- (52) | -- (61) | -0.028 (173) | 0.054 (97) |
| Arsenic | -0.019 (436) | 0.008 (450) | -0.069 (24) | 0.106 (449) | -0.114 (448) | 0.654 (450) | 0.104 (450) | 0.593 (102) | 0.046 (54) | 0.160 (28) | 0.194 (78) | 0.111 (64) | 0.236 (52) | -0.050 (62) | -0.033 (181) | -0.221 (97) |
| Barium | -0.059 (436) | -0.028 (450) | -0.075 (24) | 0.073 (449) | 0.002 (448) | 0.106 (450) | -0.021 (450) | 0.102 (102) | -0.052 (54) | -0.342 (28) | -0.024 (78) | -0.075 (64) | -0.178 (52) | -0.125 (62) | 0.026 (181) | 0.023 (97) |
| Beryllium | -0.012 (436) | -0.005 (450) | -- (24) | -0.013 (449) | 0.021 (448) | -0.004 (450) | -0.005 (450) | 0.057 (102) | -- (54) | -- (28) | -0.016 (78) | -- (64) | -- (52) | -- (62) | 0.117 (181) | -0.036 (97) |
| Cadmium | -0.025 (436) | -0.011 (449) | -0.045 (23) | -0.029 (448) | -0.057 (447) | -0.008 (449) | -0.011 (449) | -0.091 (101) | -0.097 (54) | -0.200 (28) | -0.033 (77) | 0.016 (64) | 0.037 (52) | 0.077 (61) | -0.031 (181) | 0.004 (97) |
| Calcium | 0.175 (436) | 0.049 (450) | -0.117 (24) | 0.256 (449) | -0.191 (448) | 0.083 (450) | 0.026 (450) | 0.722 (102) | -0.084 (54) | 0.631 (28) | 0.078 (78) | -0.064 (64) | 0.172 (52) | 0.099 (62) | 0.001 (181) | 0.359 (97) |
| Chromium | -0.088 (436) | -0.008 (450) | -0.097 (24) | -0.076 (449) | 0.084 (448) | -0.008 (450) | -0.034 (450) | -0.233 (102) | -0.033 (54) | -0.171 (28) | -0.036 (78) | 0.080 (64) | -0.114 (52) | -0.113 (62) | 0.027 (181) | 0.201 (97) |
| Cobalt | 0.091 (436) | 0.037 (450) | -0.077 (24) | 0.431 (449) | -0.023 (448) | 0.143 (450) | 0.080 (450) | 0.139 (102) | -0.045 (54) | 0.071 (28) | 0.513 (78) | -0.029 (64) | 0.266 (52) | 0.046 (62) | -0.037 (181) | 0.080 (97) |
| Copper | 0.003 (436) | -0.012 (450) | -0.072 (24) | 0.013 (449) | 0.019 (448) | 0.169 (450) | 0.013 (450) | 0.436 (102) | -0.008 (54) | 0.074 (28) | -0.025 (78) | -0.051 (64) | -0.115 (52) | -0.132 (62) | -0.024 (181) | -0.053 (97) |
| Iron | 0.029 (436) | -0.008 (450) | -0.003 (24) | 0.119 (449) | -0.104 (448) | 0.802 (450) | 0.199 (450) | 0.455 (102) | 0.024 (54) | -0.118 (28) | 0.029 (78) | 0.124 (64) | -0.011 (52) | -0.112 (62) | 0.016 (184) | -0.016 (97) |
| Lead | 0.328 (436) | -0.030 (450) | -0.061 (24) | 0.189 (449) | -0.019 (448) | 0.052 (450) | -0.026 (450) | 0.122 (101) | -0.131 (54) | 0.234 (28) | -0.026 (77) | -0.141 (64) | 0.037 (52) | -0.060 (61) | -0.023 (181) | 0.110 (97) |
| Magnesium | 0.167 (436) | 0.068 (450) | -0.180 (24) | 0.381 (449) | -0.257 (448) | 0.354 (450) | 0.086 (450) | 0.706 (102) | 0.087 (54) | 0.280 (28) | 0.056 (78) | -0.105 (64) | 0.394 (52) | -0.054 (62) | 0.047 (181) | 0.299 (97) |
| Manganese | 0.159 (436) | 0.025 (450) | -0.094 (24) | 0.370 (449) | -0.190 (448) | 0.381 (450) | 0.150 (450) | 0.527 (102) | -0.076 (54) | 0.134 (28) | 0.230 (78) | -0.194 (64) | 0.229 (52) | -0.091 (62) | 0.037 (184) | 0.175 (97) |
| Mercury | 0.037 (436) | 0.019 (443) | -- (18) | 0.000 (442) | -0.033 (441) | -0.011 (443) | -0.016 (443) | -0.093 (95) | -0.058 (54) | -0.099 (28) | -0.018 (71) | 0.020 (64) | 0.257 (52) | 0.291 (55) | -0.023 (181) | 0.016 (97) |
| Molybdenum | -- (0) | -0.112 (20) | -0.157 (15) | -- (19) | 0.016 (20) | 0.255 (20) | 0.015 (20) | 0.136 (23) | -- (0) | -- (0) | 0.051 (23) | -- (0) | -- (0) | 0.623 (23) | -- (0) | -- (0) |
| Nickel | -0.038 (436) | -0.019 (450) | 0.603 (24) | -0.046 (449) | 0.024 (448) | -0.014 (450) | -0.018 (450) | -0.258 (102) | 0.016 (54) | -0.140 (28) | -0.012 (78) | 0.145 (64) | -0.094 (52) | -0.101 (62) | 0.053 (181) | -0.037 (97) |
| Potassium | -0.001 (436) | 0.040 (450) | 0.065 (24) | -0.006 (449) | -0.083 (448) | 0.061 (450) | -0.001 (450) | 0.393 (102) | -0.203 (54) | -0.307 (28) | -0.143 (78) | -0.036 (64) | -0.025 (52) | -0.218 (62) | 0.077 (181) | 0.431 (97) |
| Selenium | 0.073 (436) | -0.008 (449) | -0.070 (23) | 0.058 (448) | -0.031 (447) | -0.014 (449) | -0.020 (449) | 0.074 (101) | -0.101 (54) | 0.171 (28) | 0.391 (77) | -0.088 (64) | 0.036 (52) | 0.054 (61) | 0.160 (181) | -0.058 (97) |
| Silver | 0.005 (412) | -0.010 (426) | -- (24) | 0.087 (425) | -0.057 (424) | -0.007 (426) | -0.011 (426) | -- (102) | -- (54) | -- (28) | -- (78) | -- (64) | -- (52) | -- (62) | -0.034 (178) | -- (97) |
| Sodium | 0.112 (436) | -0.019 (450) | -0.083 (24) | 0.135 (449) | -0.344 (448) | 0.140 (450) | 0.011 (450) | 0.317 (101) | -0.221 (54) | -0.179 (28) | 0.020 (77) | -0.152 (64) | 0.486 (52) | -0.002 (61) | -0.106 (181) | 0.209 (97) |
| Thallium | -0.036 (436) | -0.027 (450) | -0.043 (24) | -0.001 (449) | -0.069 (448) | -0.020 (450) | -0.027 (450) | -0.024 (102) | -- (54) | -- (28) | -0.016 (78) | -0.050 (64) | -- (52) | -0.084 (62) | -0.002 (181) | -0.068 (97) |
| Vanadium | -0.045 (436) | -0.019 (450) | -0.043 (24) | -0.052 (449) | 0.020 (448) | -0.014 (450) | -0.017 (450) | 0.232 (102) | -- (54) | -- (28) | -0.016 (78) | -- (64) | -- (52) | -0.083 (62) | 0.025 (181) | -- (97) |
| Zinc | 0.485 (436) | -0.023 (450) | -0.110 (24) | 0.163 (449) | -0.017 (448) | -0.019 (450) | -0.027 (450) | 0.273 (102) | -0.026 (54) | -0.201 (28) | -0.018 (78) | -0.201 (64) | 0.039 (52) | 0.052 (62) | 0.099 (181) | 0.214 (97) |
| Temperature | -0.053 (1127) | -0.030 (788) | -0.100 (12) | 0.009 (1008) | -0.053 (788) | 0.247 (1008) | 0.141 (1008) | 0.234 (199) | 0.026 (206) | 0.276 (168) | 0.004 (204) | 0.204 (189) | -0.057 (200) | -0.106 (182) | 0.039 (211) | 0.207 (115) |
| Dissolved Oxygen | -0.194 (1127) | 0.004 (788) | 0.209 (12) | -0.242 (1008) | 0.510 (788) | -0.142 (1008) | -0.094 (1008) | -0.549 (199) | -0.255 (206) | -0.239 (168) | -0.464 (204) | 0.024 (189) | -0.356 (200) | -0.366 (182) | 0.031 (211) | -0.039 (115) |
| Turbidity | -0.029 (1125) | -0.014 (787) | -0.008 (12) | -0.061 (1007) | -0.017 (787) | -0.030 (1007) | -0.020 (1007) | -0.148 (198) | -0.053 (205) | -0.088 (167) | -0.045 (203) | -0.066 (188) | -0.091 (199) | -0.087 (181) | 0.241 (210) | -0.065 (115) |
| ORP | -0.128 (1127) | -0.033 (788) | 0.478 (12) | -0.195 (1008) | 0.225 (788) | -0.174 (1008) | -0.123 (1008) | -0.105 (199) | 0.076 (206) | 0.125 (168) | -0.176 (204) | 0.157 (189) | -0.262 (200) | -0.283 (182) | -0.075 (211) | 0.114 (115) |
| Specific Conductivity | 0.116 (1127) | -0.024 (788) | -0.259 (12) | 0.190 (1008) | -0.256 (788) | 0.249 (1008) | 0.166 (1008) | 0.432 (199) | 0.173 (206) | 0.303 (168) | 0.013 (204) | 0.331 (189) | -0.014 (200) | -0.051 (182) | -0.166 (211) | 0.575 (115) |
| pH | 0.005 (1127) | 0.026 (788) | -0.093 (12) | -0.042 (1008) | -0.228 (788) | 0.058 (1008) | 0.052 (1008) | 0.230 (199) | -0.253 (206) | -0.156 (168) | -0.065 (204) | -0.043 (189) | 0.225 (200) | 0.237 (182) | 0.116 (211) | 0.097 (115) |

| | TOC | Aluminum | Antimony | Arsenic | Barium | Beryllium | Cadmium | Calcium | Chromium | Cobalt | Copper | Iron | Lead | Magnesium | Manganese | Mercury |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOC | 1.000 (275) | | | | | | | | | | | | | | | |
| Aluminum | -0.029 (104) | 1.000 (576) | | | | | | | | | | | | | | |
| Antimony | -- (103) | -0.013 (563) | 1.000 (564) | | | | | | | | | | | | | |
| Arsenic | 0.600 (104) | 0.207 (573) | 0.057 (562) | 1.000 (574) | | | | | | | | | | | | |
| Barium | 0.145 (104) | 0.448 (576) | -0.013 (564) | 0.190 (574) | 1.000 (577) | | | | | | | | | | | |
| Beryllium | -0.049 (104) | 0.510 (573) | -0.007 (562) | 0.062 (574) | 0.377 (574) | 1.000 (574) | | | | | | | | | | |
| Cadmium | -0.046 (103) | -0.014 (574) | -0.009 (563) | -0.019 (573) | -0.016 (575) | -0.008 (573) | 1.000 (575) | | | | | | | | | |
| Calcium | 0.264 (104) | 0.062 (576) | 0.008 (564) | 0.273 (574) | 0.329 (577) | 0.007 (574) | -0.060 (575) | 1.000 (577) | | | | | | | | |
| Chromium | -0.117 (104) | 0.696 (573) | -0.004 (562) | 0.147 (574) | 0.494 (574) | 0.590 (574) | 0.025 (573) | 0.018 (574) | 1.000 (574) | | | | | | | |
| Cobalt | 0.259 (104) | 0.252 (573) | 0.092 (562) | 0.303 (574) | 0.346 (574) | 0.210 (574) | -0.037 (573) | 0.160 (574) | 0.309 (574) | 1.000 (574) | | | | | | |
| Copper | 0.493 (104) | 0.209 (573) | 0.015 (562) | 0.136 (574) | 0.194 (574) | 0.166 (574) | 0.381 (573) | 0.057 (574) | 0.215 (574) | 0.152 (574) | 1.000 (574) | | | | | |
| Iron | 0.567 (107) | 0.475 (576) | 0.008 (564) | 0.724 (574) | 0.395 (577) | 0.323 (574) | -0.024 (575) | 0.202 (577) | 0.573 (574) | 0.436 (574) | 0.244 (574) | 1.000 (583) | | | | |
| Lead | 0.207 (103) | 0.107 (575) | 0.020 (564) | 0.076 (573) | 0.118 (576) | 0.099 (573) | 0.139 (574) | 0.049 (576) | 0.133 (573) | 0.134 (573) | 0.086 (573) | 0.149 (576) | 1.000 (576) | | | |
| Magnesium | 0.700 (104) | 0.253 (576) | 0.024 (564) | 0.535 (574) | 0.455 (577) | 0.196 (574) | -0.070 (575) | 0.692 (577) | 0.224 (574) | 0.362 (574) | 0.160 (574) | 0.567 (577) | 0.075 (576) | 1.000 (577) | | |
| Manganese | 0.652 (107) | 0.097 (576) | 0.010 (564) | 0.684 (574) | 0.218 (577) | 0.034 (574) | -0.033 (575) | 0.386 (577) | 0.080 (574) | 0.425 (574) | 0.083 (574) | 0.578 (583) | 0.089 (576) | 0.634 (577) | 1.000 (583) | |
| Mercury | -- (97) | -0.019 (567) | -0.014 (556) | 0.041 (567) | 0.028 (568) | -0.012 (567) | -0.017 (567) | -0.025 (568) | -0.017 (567) | 0.072 (567) | 0.096 (567) | 0.060 (568) | 0.083 (567) | -0.010 (568) | 0.084 (568) | 1.000 (568) |
| Molybdenum | 0.063 (23) | 0.641 (27) | -0.094 (25) | 0.569 (27) | 0.192 (27) | -- (27) | -0.128 (26) | 0.641 (27) | 0.768 (27) | 0.093 (27) | 0.112 (27) | 0.118 (27) | 0.509 (26) | -0.153 (27) | 0.123 (27) | -- (20) |
| Nickel | -0.144 (104) | 0.155 (573) | -0.014 (562) | -0.023 (574) | 0.047 (574) | 0.057 (574) | -0.016 (573) | -0.055 (574) | 0.255 (574) | 0.114 (574) | 0.001 (574) | 0.256 (574) | 0.036 (573) | -0.050 (574) | -0.018 (574) | -0.003 (567) |
| Potassium | 0.125 (104) | 0.329 (576) | -0.056 (564) | 0.147 (574) | 0.448 (577) | 0.220 (574) | -0.023 (575) | 0.357 (577) | 0.289 (574) | 0.152 (574) | 0.084 (574) | 0.281 (577) | 0.071 (576) | 0.336 (577) | 0.153 (577) | 0.054 (568) |
| Selenium | 0.004 (103) | 0.032 (574) | -0.015 (563) | 0.060 (573) | 0.008 (575) | -0.013 (573) | -0.018 (575) | -0.009 (575) | -0.008 (573) | 0.035 (573) | -0.028 (573) | 0.037 (575) | 0.027 (574) | 0.045 (575) | 0.014 (575) | -0.028 (567) |
| Silver | -- (104) | -0.013 (548) | 0.210 (536) | 0.278 (548) | 0.024 (548) | -0.007 (548) | -0.010 (547) | 0.105 (548) | -0.002 (548) | 0.073 (548) | 0.005 (548) | 0.184 (548) | -0.009 (547) | 0.176 (548) | 0.244 (548) | -0.015 (541) |
| Sodium | 0.298 (103) | -0.074 (575) | 0.046 (564) | 0.029 (573) | 0.145 (576) | -0.046 (573) | 0.077 (574) | 0.074 (576) | -0.051 (573) | 0.143 (573) | 0.063 (573) | 0.039 (576) | -0.040 (576) | 0.131 (576) | 0.148 (576) | 0.010 (567) |
| Thallium | 0.072 (104) | -0.024 (573) | -0.020 (562) | -0.049 (574) | -0.032 (574) | 0.096 (574) | -0.024 (573) | 0.010 (574) | -0.016 (574) | 0.003 (574) | -0.002 (574) | -0.034 (574) | -0.067 (573) | -0.023 (574) | 0.044 (574) | -0.026 (567) |
| Vanadium | -0.049 (104) | 0.750 (573) | 0.002 (562) | 0.206 (574) | 0.547 (574) | 0.607 (574) | -0.007 (573) | 0.097 (574) | 0.754 (574) | 0.281 (574) | 0.243 (574) | 0.462 (574) | 0.137 (573) | 0.239 (574) | 0.039 (574) | -0.016 (567) |
| Zinc | -0.029 (104) | -0.009 (576) | -0.019 (564) | -0.022 (574) | 0.009 (577) | 0.165 (574) | -0.002 (575) | 0.130 (577) | -0.036 (574) | -0.052 (574) | -0.020 (574) | -0.012 (577) | 0.372 (576) | 0.128 (577) | 0.062 (577) | -0.042 (568) |
| Temperature | 0.051 (229) | 0.119 (450) | -0.021 (441) | 0.008 (451) | 0.138 (451) | 0.013 (451) | 0.046 (451) | -0.004 (451) | 0.000 (451) | 0.054 (451) | -0.012 (451) | 0.057 (454) | -0.018 (451) | -0.046 (451) | -0.019 (454) | -0.057 (451) |
| Dissolved Oxygen | -0.419 (229) | -0.046 (450) | -0.044 (441) | -0.295 (451) | -0.137 (451) | 0.003 (451) | 0.026 (451) | -0.444 (451) | 0.062 (451) | -0.325 (451) | -0.005 (451) | -0.378 (454) | -0.117 (451) | -0.523 (451) | -0.573 (454) | 0.010 (451) |
| Turbidity | -0.120 (228) | 0.051 (450) | -0.017 (441) | -0.016 (451) | -0.056 (451) | -0.011 (451) | -0.018 (451) | -0.086 (451) | 0.025 (451) | -0.036 (451) | -0.024 (451) | 0.074 (454) | -0.029 (451) | -0.095 (451) | -0.046 (454) | -0.015 (451) |
| ORP | 0.037 (229) | -0.007 (450) | -0.022 (441) | -0.235 (451) | -0.046 (451) | 0.022 (451) | 0.070 (451) | -0.245 (451) | 0.006 (451) | -0.192 (451) | 0.016 (451) | -0.349 (454) | -0.075 (451) | -0.249 (451) | -0.267 (454) | 0.003 (451) |
| Specific Conductivity | 0.161 (229) | 0.117 (450) | 0.014 (441) | 0.153 (451) | 0.148 (451) | 0.007 (451) | 0.099 (451) | 0.383 (451) | -0.040 (451) | 0.065 (451) | -0.017 (451) | 0.144 (454) | -0.009 (451) | 0.350 (451) | 0.236 (454) | 0.002 (451) |
| pH | -0.407 (229) | 0.003 (450) | 0.023 (441) | 0.138 (451) | -0.186 (451) | 0.078 (451) | -0.029 (451) | 0.081 (451) | 0.078 (451) | -0.154 (451) | -0.060 (451) | 0.161 (454) | -0.090 (451) | -0.006 (451) | 0.023 (454) | 0.059 (451) |

| | Molybdenum | Nickel | Potassium | Selenium | Silver | Sodium | Thallium | Vanadium | Zinc | Temperature | Dissolved Oxygen | Turbidity | ORP | Specific Conductivity | pH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Molybdenum | 1.000 (27) | | | | | | | | | | | | | | |
| Nickel | 0.028 (27) | 1.000 (574) | | | | | | | | | | | | | |
| Potassium | 0.412 (27) | 0.016 (574) | 1.000 (577) | | | | | | | | | | | | |
| Selenium | -0.090 (26) | -0.028 (573) | 0.027 (575) | 1.000 (575) | | | | | | | | | | | |
| Silver | -- (27) | -0.016 (548) | -0.050 (548) | 0.062 (547) | 1.000 (548) | | | | | | | | | | |
| Sodium | -0.135 (26) | -0.054 (573) | 0.103 (576) | -0.028 (574) | -0.001 (547) | 1.000 (576) | | | | | | | | | |
| Thallium | -0.086 (27) | -0.039 (574) | 0.001 (574) | -0.040 (573) | -0.020 (548) | 0.067 (573) | 1.000 (574) | | | | | | | | |
| Vanadium | 0.775 (27) | 0.071 (574) | 0.377 (574) | 0.060 (573) | -0.009 (548) | -0.015 (573) | -0.007 (574) | 1.000 (574) | | | | | | | |
| Zinc | 0.029 (27) | -0.020 (574) | 0.003 (577) | 0.001 (575) | -0.026 (548) | 0.025 (576) | -0.060 (574) | -0.018 (574) | 1.000 (577) | | | | | | |
| Temperature | -- (0) | 0.048 (451) | 0.109 (451) | -0.018 (451) | 0.009 (426) | -0.004 (451) | 0.083 (451) | -0.012 (451) | -0.049 (451) | 1.000 (1676) | | | | | |
| Dissolved Oxygen | -- (0) | 0.025 (451) | -0.321 (451) | -0.014 (451) | -0.012 (426) | -0.308 (451) | -0.048 (451) | 0.057 (451) | -0.021 (451) | -0.108 (1676) | 1.000 (1676) | | | | |
| Turbidity | -- (0) | 0.146 (451) | 0.012 (451) | -0.028 (451) | -0.019 (426) | -0.093 (451) | -0.036 (451) | -0.018 (451) | -0.025 (451) | -0.049 (1672) | 0.047 (1672) | 1.000 (1672) | | | |
| ORP | -- (0) | -0.112 (451) | -0.203 (451) | -0.135 (451) | -0.022 (426) | 0.030 (451) | 0.005 (451) | 0.014 (451) | -0.037 (451) | 0.105 (1676) | 0.321 (1676) | -0.098 (1672) | 1.000 (1676) | | |
| Specific Conductivity | -- (0) | -0.051 (451) | 0.214 (451) | -0.014 (451) | 0.024 (426) | 0.189 (451) | -0.007 (451) | -0.037 (451) | -0.007 (451) | 0.072 (1676) | -0.196 (1676) | 0.069 (1672) | -0.224 (1676) | 1.000 (1676) | |
| pH | -- (0) | 0.096 (451) | 0.225 (451) | -0.033 (451) | 0.002 (426) | 0.198 (451) | 0.018 (451) | 0.113 (451) | -0.112 (451) | 0.153 (1676) | -0.052 (1676) | 0.101 (1672) | -0.346 (1676) | 0.148 (1676) | 1.000 (1676) |

Data Source: AFCEE, 11 February 2001, MMR-AFCEE Data Warehouse

-- = correlation calculation not possible because one or both variables in the comparison contained solely nondetect values, and/or one or both variables in the comparison had no respective measurements with which to compare
(#) = number of data-pair comparisons for those two variables
[box] = significant correlation at the 1% (P < 0.01) level

EDB = ethylene dibromide
DO = dissolved oxygen
DOC = dissolved organic carbon
Total N = total nitrogen
$NH_3$ = ammonia
$NO_3$ = nitrate
$NO_2$ = nitrite
$oPO_4$ = orthophosphate
ORP = oxidation-reduction potential
TSS = total suspended solids
TDS = total dissolved solids
TOC = total organic carbon
YSI = Yellow Springs Instruments, Inc. water quality meter

The accuracy of the YSI readings are as follows: temperature (+/- 0.15%) , specific conductivity (+/- 0.5% of reading plus 1µS/cm), DO (for instrument readings 0-20 mg/L +/- 0.2 mg/L or for instrument readings 20-50 mg/L, +/- 0.6 mg/L), pH (+/- 0.2 units), ORP (+/- 20 mV), turbidity (the greater of +/- 5% or reading of +/- 2 NTU).

# Table 5-6
# Surface Water Elevations
# January - December 2000

| Study Area | Class | Location Identification | Date | Surface Water Elevation (ft msl) |
|---|---|---|---|---|
| Snake Pond | Study | ECSGSNP02 | 29-Mar-00 | 67.73 |
| Snake Pond | Study | ECSGSNP02 | 28-Apr-00 | 67.85 |
| Snake Pond | Study | ECSGSNP02 | 1-May-00 | 67.83 |
| Snake Pond | Study | ECSGSNP02 | 2-May-00 | 67.81 |
| Snake Pond | Study | ECSGSNP02 | 3-May-00 | 67.81 |
| Snake Pond | Study | ECSGSNP02 | 31-May-00 | 67.80 |
| Snake Pond | Study | ECSGSNP02 | 15-Jun-00 | 67.83 |
| Snake Pond | Study | ECSGSNP02 | 28-Jun-00 | 67.75 |
| Snake Pond | Study | ECSGSNP02 | 31-Jul-00 | 67.65 |
| Snake Pond | Study | ECSGSNP02 | 29-Aug-00 | 67.65 |
| Snake Pond | Study | ECSGSNP02 | 29-Sep-00 | 67.37 |
| Snake Pond | Study | ECSGSNP02 | 4-Oct-00 | 65.17 |
| Snake Pond | Study | ECSGSNP02 | 29-Nov-00 | 64.72 |
| Weeks Pond | Study | ECSGWKP02 | 29-Mar-00 | 67.03 |
| Weeks Pond | Study | ECSGWKP02 | 28-Apr-00 | 67.22 |
| Weeks Pond | Study | ECSGWKP02 | 31-May-00 | 67.23 |
| Weeks Pond | Study | ECSGWKP02 | 28-Jun-00 | 67.25 |
| Weeks Pond | Study | ECSGWKP02 | 31-Jul-00 | 67.25 |
| Weeks Pond | Study | ECSGWKP02 | 29-Aug-00 | 67.15 |
| Weeks Pond | Study | ECSGWKP02 | 29-Sep-00 | 66.87 |
| Weeks Pond | Study | ECSGWKP02 | 4-Oct-00 | 66.80 |
| Weeks Pond | Study | ECSGWKP02 | 29-Nov-00 | 66.38 |
| Peters Pond | Reference | ECSGPTP02 | 29-Mar-00 | 65.56 |
| Peters Pond | Reference | ECSGPTP02 | 28-Apr-00 | 64.90 |
| Peters Pond | Reference | ECSGPTP02 | 11-May-00 | 65.58 |
| Peters Pond | Reference | ECSGPTP02 | 31-May-00 | 65.62 |
| Peters Pond | Reference | ECSGPTP02 | 28-Jun-00 | 65.56 |
| Peters Pond | Reference | ECSGPTP02 | 31-Jul-00 | 65.50 |
| Peters Pond | Reference | ECSGPTP02 | 29-Aug-00 | 65.53 |
| Peters Pond | Reference | ECSGPTP02 | 29-Sep-00 | 65.26 |
| Peters Pond | Reference | ECSGPTP02 | 4-Oct-00 | 65.17 |
| Peters Pond | Reference | ECSGPTP02 | 29-Nov-00 | 64.72 |
| Triangle Pond | Reference | ECSGTRP02 | 31-Mar-00 | 61.95 |
| Triangle Pond | Reference | ECSGTRP02 | 28-Apr-00 | 62.18 |
| Triangle Pond | Reference | ECSGTRP02 | 3-May-00 | 62.18 |
| Triangle Pond | Reference | ECSGTRP02 | 31-May-00 | 62.30 |
| Triangle Pond | Reference | ECSGTRP02 | 28-Jun-00 | 62.25 |
| Triangle Pond | Reference | ECSGTRP02 | 31-Jul-00 | 61.99 |
| Triangle Pond | Reference | ECSGTRP02 | 29-Aug-00 | 61.88 |
| Triangle Pond | Reference | ECSGTRP02 | 29-Sep-00 | 61.52 |
| Triangle Pond | Reference | ECSGTRP02 | 4-Oct-00 | 61.47 |
| Triangle Pond | Reference | ECSGTRP02 | 29-Nov-00 | 61.18 |

Data Source: Jacobs Engineering Group Inc., 01 February 2001, Site Environmental Evaluation (SEE) database
ft msl = feet mean sea level

Table 5-7
Field and Physicochemical Parameters for Surface Water Locations
January - December 2000

| | | | | | | | YSI - Water Quality Meter | | | | | | Laboratory Analyses | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Study Area | Location Identification | Date | Limnion | Depth (ft) | Secchi Disk (up) (ft) | Secchi Disk (down) (ft) | Temp (°C) | SpC (µS/cm) | DO (mg/L) | pH (std) | ORP (mV) | Turb (NTU) | Alkalinity (mg/L) | Ammonia (µg/L) | Nitrate (µg/L) | Nitrite (µg/L) | Total Nitrogen (µg/L) | Total Phosphorus (µg/L) | Ortho-phosphate (µg/L) | Total Organic Carbon (mg/L) | Chlorophyll-*a* (µg/L) |
| Snake Pond | ECSNP03 | 13-Mar-00 | E | 0 | 20 | 21 | 7.00 | 59 | 12.70 | 7.27 | 347.2 | 1.4 | | | | | | | | | |
| | | | E | 3 | | | 6.99 | 59 | 12.45 | 7.21 | 342.4 | 3.3 | 6.3 | 5 | ND | ND | 205 | 9.7 | 1 | ND | 3.8 |
| | | | E | 6 | | | 6.97 | 59 | 12.41 | 7.18 | 339.5 | 1.2 | | | | | | | | | |
| | | | E | 9 | | | 6.95 | 59 | 12.39 | 7.11 | 341.1 | 0.9 | | | | | | | | | |
| | | | E | 12 | | | 6.96 | 59 | 12.38 | 7.08 | 340.9 | 1.0 | | | | | | | | | |
| | | | E | 15 | | | 6.96 | 59 | 12.37 | 7.05 | 340.7 | 0.9 | | | | | | | | | |
| | | | E | 18 | | | 6.95 | 59 | 12.36 | 7.04 | 342.6 | 1.1 | | | | | | | | | |
| | | | E | 21 | | | 6.93 | 59 | 12.36 | 6.97 | 342.5 | 1.5 | | | | | | | | | |
| | | | E | 24 | | | 6.93 | 59 | 12.34 | 6.96 | 342.9 | 1.4 | | | | | | | | | |
| Snake Pond | ECSNP03 | 2-May-00 | E | 0 | 10 | 11 | 11.34 | 55 | 11.49 | 7.24 | 186.3 | 1.8 | | | | | | | | | |
| | | | E | 3 | | | 11.33 | 55 | 11.50 | 7.14 | 189.9 | 2.0 | ND | 12.3 | ND | ND | ND | 13.4 | ND | 1.3 | 6.3 |
| | | | E | 6 | | | 11.28 | 56 | 11.50 | 7.10 | 190.2 | 1.0 | | | | | | | | | |
| | | | E | 9 | | | 11.28 | 55 | 11.51 | 7.10 | 189.0 | 1.3 | | | | | | | | | |
| | | | E | 12 | | | 11.23 | 55 | 11.52 | 7.09 | 190.4 | 1.3 | | | | | | | | | |
| | | | E | 15 | | | 11.17 | 55 | 11.54 | 7.07 | 190.7 | 0.9 | | | | | | | | | |
| | | | E | 18 | | | 11.10 | 55 | 11.55 | 7.05 | 191.6 | 0.9 | | | | | | | | | |
| | | | E | 21 | | | 10.70 | 56 | 11.60 | 7.04 | 183.5 | 0.9 | | | | | | | | | |
| | | | E | 24 | | | 10.68 | 55 | 11.59 | 7.01 | 186.0 | 1.0 | | | | | | | | | |
| | | | E | 27 | | | 10.44 | 55 | 9.97 | 6.95 | 162.2 | 567.2 | | | | | | | | | |
| Snake Pond | ECSNP03 | 25-Sep-00 | E | 0 | 17 | 18 | 20.45 | 58 | 9.28 | 7.21 | 200.0 | 0.4 | | | | | | | | | |
| | | | E | 3 | | | 20.46 | 58 | 8.88 | 6.98 | 207.0 | 0.4 | 5.2 | ND | ND | ND | 164 | 9.1 | ND | 2.4 | 1.9 |
| | | | E | 6 | | | 20.46 | 58 | 8.83 | 6.84 | 213.8 | 0.5 | | | | | | | | | |
| | | | E | 9 | | | 20.46 | 58 | 8.78 | 6.74 | 216.4 | 0.4 | | | | | | | | | |
| | | | E | 12 | | | 20.46 | 58 | 8.77 | 6.71 | 218.5 | 0.7 | | | | | | | | | |
| | | | E | 15 | | | 20.45 | 58 | 8.73 | 6.58 | 225.8 | 0.4 | | | | | | | | | |
| | | | E | 18 | | | 20.43 | 58 | 8.70 | 6.48 | 223.1 | 0.5 | | | | | | | | | |
| | | | E | 21 | | | 20.35 | 58 | 8.79 | 6.44 | 231.3 | 0.5 | | | | | | | | | |
| | | | E | 24 | | | 20.12 | 58 | 8.28 | 6.44 | 234.4 | 0.9 | | | | | | | | | |
| | | | H | 27 | | | 18.63 | 60 | 3.96 | 5.97 | 225.1 | 44.7 | | | | | | | | | |
| Snake Pond | ECSNP06 | 13-Mar-00 | E | 0 | 20 | 21 | 7.09 | 59 | 12.97 | 6.90 | 309.4 | 3.0 | | | | | | | | | |
| | | | E | 3 | | | 7.08 | 59 | 12.47 | 6.88 | 305.8 | 2.7 | 5.1 | 6.1 | 9.6 | 3.2 | 195 | 8.1 | 1.3 | 2 | 4 |
| | | | E | 6 | | | 7.06 | 59 | 12.37 | 6.85 | 304.4 | 2.5 | | | | | | | | | |
| | | | E | 9 | | | 7.04 | 59 | 12.36 | 6.85 | 304.5 | 2.2 | | | | | | | | | |
| | | | E | 12 | | | 7.01 | 59 | 12.35 | 6.84 | 305.9 | 2.0 | | | | | | | | | |
| | | | E | 15 | | | 6.96 | 59 | 12.36 | 6.83 | 306.9 | 1.9 | | | | | | | | | |
| | | | E | 18 | | | 6.92 | 59 | 12.36 | 6.82 | 309.8 | 1.6 | | | | | | | | | |
| | | | E | 21 | | | 6.92 | 59 | 12.38 | 6.82 | 310.9 | 1.8 | | | | | | | | | |
| Snake Pond | ECSNP06 | 2-May-00 | E | 0 | 9 | 10 | 11.31 | 55 | 11.56 | 6.82 | 166.2 | 1.5 | | | | | | | | | |
| | | | E | 3 | | | 11.32 | 56 | 11.54 | 6.92 | 161.9 | 1.6 | ND | ND | 1.8 J | ND | 199 | 14.2 | 1.7 J | 1.3 | 5.6 |
| | | | E | 6 | | | 11.29 | 56 | 11.54 | 6.90 | 162.7 | 1.2 | | | | | | | | | |
| | | | E | 9 | | | 11.29 | 55 | 11.54 | 6.90 | 163.4 | 0.9 | | | | | | | | | |
| | | | E | 12 | | | 11.29 | 56 | 11.54 | 6.89 | 164.4 | 0.9 | | | | | | | | | |
| | | | E | 15 | | | 11.24 | 55 | 11.53 | 6.89 | 164.1 | 1.0 | | | | | | | | | |
| | | | E | 18 | | | 11.24 | 56 | 11.52 | 6.88 | 165.5 | 0.9 | | | | | | | | | |
| | | | E | 21 | | | 11.22 | 55 | 11.51 | 6.88 | 166.1 | 0.9 | | | | | | | | | |
| | | | E | 24 | | | 11.16 | 55 | 11.48 | 6.88 | 166.6 | 1.1 | | | | | | | | | |
| | | | E | 26 | | | 11.09 | 56 | 11.01 | 6.86 | 149.2 | 72.4 | | | | | | | | | |

**Table 5-7**
**Field and Physicochemical Parameters for Surface Water Locations**
**January - December 2000**

| | | | | | | | YSI - Water Quality Meter | | | | | | Laboratory Analyses | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Study Area | Location Identification | Date | Limnion | Depth (ft) | Secchi Disk (up) (ft) | Secchi Disk (down) (ft) | Temp (°C) | SpC (µS/cm) | DO (mg/L) | pH (std) | ORP (mV) | Turb (NTU) | Alkalinity (mg/L) | Ammonia (µg/L) | Nitrate (µg/L) | Nitrite (µg/L) | Total Nitrogen (µg/L) | Total Phosphorus (µg/L) | Ortho-phosphate (µg/L) | Total Organic Carbon (mg/L) | Chlorophyll-*a* (µg/L) |
| Snake Pond | ECSNP06 | 25-Sep-00 | E | 0 | 17 | 18 | 20.55 | 58 | 9.20 | 6.42 | 57.1 | 0.5 | | | | | | | | | |
| | | | E | 3 | | | 20.57 | 58 | 8.87 | 6.30 | 75.9 | 0.4 | 2.5 J | ND | ND | ND | 368 J | 8.3 | ND | 2.6 | 2.1 |
| | | | E | 6 | | | 20.57 | 58 | 8.84 | 6.26 | 82.5 | 0.7 | | | | | | | | | |
| | | | E | 9 | | | 20.56 | 58 | 8.79 | 6.20 | 102.7 | 0.4 | | | | | | | | | |
| | | | E | 12 | | | 20.56 | 58 | 8.77 | 6.19 | 110.5 | 0.5 | | | | | | | | | |
| | | | E | 15 | | | 20.55 | 58 | 8.75 | 6.19 | 118.9 | 0.3 | | | | | | | | | |
| | | | E | 18 | | | 20.55 | 58 | 8.74 | 6.17 | 123.4 | 0.4 | | | | | | | | | |
| | | | E | 21 | | | 20.55 | 58 | 8.73 | 6.15 | 130.5 | 0.4 | | | | | | | | | |
| | | | E | 24 | | | 20.46 | 58 | 8.31 | 6.06 | 145.7 | 0.5 | | | | | | | | | |
| | | | E | 26 | | | 19.51 | 63 | 6.60 | 5.75 | 154.1 | 607.1 | | | | | | | | | |
| Snake Pond | ECSNP07 | 13-Mar-00 | E | 0 | 8 | 8 | 7.75 | 58 | 12.40 | 6.77 | 311.8 | 1.3 | | | | | | | | | |
| | | | E | 3 | | | 7.76 | 58 | 12.21 | 6.74 | 306.2 | 1.4 | 5.6 | ND | 10.9 | 3.4 | 193 | 8.1 | 1 | 2.1 | 2.7 |
| | | | E | 6 | | | 7.80 | 58 | 12.19 | 6.71 | 303.7 | 1.3 | | | | | | | | | |
| Snake Pond | ECSNP07 | 2-May-00 | E | 0 | 6 | 7 | 11.84 | 55 | 11.60 | 6.33 | 141.0 | 4.1 | | | | | | | | | |
| | | | E | 3 | | | 11.84 | 56 | 11.41 | 6.41 | 137.0 | 1.9 | ND | ND | 4.2 | ND | 218 | 13 | 1.4 J | 1.3 | 5.5 |
| | | | E | 6 | | | 11.84 | 56 | 11.35 | 6.44 | 136.7 | 1.7 | | | | | | | | | |
| | | | E | 8 | | | 11.94 | 56 | 11.43 | 6.48 | 134.5 | 12.8 | | | | | | | | | |
| Snake Pond | ECSNP07 | 25-Sep-00 | E | 0 | 8 | 8 | 19.66 | 58 | 9.58 | 6.31 | 110.3 | 0.4 | | | | | | | | | |
| | | | E | 3 | | | 19.65 | 58 | 9.35 | 6.31 | 107.7 | 0.5 | 6.5 | ND | ND | ND | 207 | 8.3 | ND | 2.7 | 2.3 |
| | | | E | 6 | | | 19.66 | 58 | 9.22 | 6.24 | 112.7 | 0.5 | | | | | | | | | |
| | | | E | 8 | | | 19.98 | 58 | 8.89 | 6.27 | 115.6 | 600.1 | | | | | | | | | |
| Peters Pond | ECPTP01 | 6-Mar-00 | E | 0 | 20 | 20 | 5.63 | 86 | 12.86 | 7.20 | 224.0 | 1.4 | | | | | | | | | |
| | | | E | 3 | | | 5.61 | 86 | 12.75 | 7.18 | 217.0 | 0.9 | 10.9 | 21.2 | 114 | 1.6 | 294 | 6.4 | ND | 2.5 | 1.4 |
| | | | E | 6 | | | 5.56 | 86 | 12.74 | 7.18 | 215.4 | 0.9 | | | | | | | | | |
| | | | E | 9 | | | 5.55 | 86 | 12.74 | 7.18 | 216.2 | 0.8 | | | | | | | | | |
| | | | E | 12 | | | 5.54 | 86 | 12.73 | 7.18 | 218.0 | 0.8 | | | | | | | | | |
| | | | E | 15 | | | 5.52 | 86 | 12.74 | 7.18 | 219.4 | 0.7 | | | | | | | | | |
| | | | E | 18 | | | 5.52 | 86 | 12.73 | 7.19 | 220.9 | 0.8 | | | | | | | | | |
| | | | E | 20 | | | 5.52 | 86 | 12.71 | 7.19 | 222.2 | 74.2 | | | | | | | | | |
| Peters Pond | ECPTP01 | 10-May-00 | E | 0 | 15 | 16 | 16.39 | 85 | 10.53 | 7.40 | 300.4 | 1.2 | | | | | | | | | |
| | | | E | 3 | | | 16.40 | 85 | 10.63 | 7.34 | 294.3 | 0.9 | ND | 23.1 | 57 | ND | 333 | 10.1 | ND | ND | 1.1 |
| | | | E | 6 | | | 16.40 | 85 | 10.61 | 7.33 | 291.4 | 1.0 | | | | | | | | | |
| | | | E | 9 | | | 16.33 | 85 | 10.71 | 7.30 | 290.9 | 0.8 | | | | | | | | | |
| | | | H | 12 | | | 14.79 | 85 | 11.14 | 7.27 | 292.0 | 0.7 | | | | | | | | | |
| | | | H | 15 | | | 13.77 | 85 | 11.16 | 7.23 | 293.9 | 1.0 | ND | 22.8 | 53.6 | ND | 276 | 6.7 | ND | ND | 1.2 |
| | | | H | 18 | | | 12.38 | 84 | 11.31 | 7.27 | 292.8 | 0.9 | | | | | | | | | |
| | | | H | 20 | | | 12.01 | 84 | 11.28 | 7.20 | 295.1 | 14.2 | | | | | | | | | |
| Peters Pond | ECPTP01 | 12-Jun-00 | E | 0 | 14 | 15 | 19.86 | 85 | 9.29 | 7.61 | 286.6 | 0.8 | | | | | | | | | |
| | | | E | 3 | | | 19.89 | 85 | 9.28 | 7.54 | 281.6 | 1.3 | ND | 17.7 | 15.2 | ND | 519 | ND | ND | 2.8 | 2.4 |
| | | | E | 6 | | | 19.88 | 85 | 9.33 | 7.47 | 282.0 | 0.7 | | | | | | | | | |
| | | | E | 9 | | | 19.87 | 85 | 9.26 | 7.44 | 282.0 | 1.1 | | | | | | | | | |
| | | | E | 12 | | | 19.36 | 85 | 9.47 | 7.42 | 284.2 | 0.6 | | | | | | | | | |
| | | | E | 15 | | | 18.89 | 85 | 9.55 | 7.43 | 284.2 | 0.7 | | | | | | | | | |
| | | | E | 18 | | | 18.57 | 85 | 9.42 | 7.36 | 289.2 | 0.6 | | | | | | | | | |
| | | | E | 20 | | | 17.94 | 87 | 7.74 | 7.29 | 246.1 | 56.3 | | | | | | | | | |

**Table 5-7**
**Field and Physicochemical Parameters for Surface Water Locations**
**January - December 2000**

| | | | | | | | YSI - Water Quality Meter | | | | | | Laboratory Analyses | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Study Area | Location Identification | Date | Limnion | Depth (ft) | Secchi Disk (up) (ft) | Secchi Disk (down) (ft) | Temp (°C) | SpC (µS/cm) | DO (mg/L) | pH (std) | ORP (mV) | Turb (NTU) | Alkalinity (mg/L) | Ammonia (µg/L) | Nitrate (µg/L) | Nitrite (µg/L) | Total Nitrogen (µg/L) | Total Phosphorus (µg/L) | Ortho-phosphate (µg/L) | Total Organic Carbon (mg/L) | Chlorophyll-*a* (µg/L) |
| Peters Pond | ECPTP01 | 17-Aug-00 | E | 0 | 14 | 15 | 23.03 | 83 | 8.81 | 6.87 | 188.8 | 0.6 | | | | | | | | | |
| | | | E | 3 | | | 23.04 | 84 | 8.69 | 6.88 | 183.1 | 0.4 | 16 | ND | 15.3 | ND | 212 | 8.1 | 1.3 J | ND | 1.5 |
| | | | E | 6 | | | 23.03 | 83 | 8.63 | 6.85 | 184.8 | 0.7 | | | | | | | | | |
| | | | E | 9 | | | 23.03 | 84 | 8.60 | 6.82 | 188.1 | 0.5 | | | | | | | | | |
| | | | E | 12 | | | 23.00 | 84 | 8.63 | 6.84 | 188.7 | 0.5 | | | | | | | | | |
| | | | E | 15 | | | 22.99 | 84 | 8.62 | 6.82 | 190.9 | 0.5 | | | | | | | | | |
| | | | E | 18 | | | 23.00 | 84 | 8.61 | 6.81 | 192.4 | 0.6 | | | | | | | | | |
| | | | E | 20 | | | 23.01 | 84 | 8.61 | 6.86 | 188.7 | 23.2 | | | | | | | | | |
| Peters Pond | ECPTP01 | 25-Sep-00 | E | 0 | 15 | 16 | 20.61 | 87 | 8.66 | 7.21 | 256.5 | 0.6 | | | | | | | | | |
| | | | E | 3 | | | 20.62 | 87 | 8.61 | 7.15 | 251.1 | 0.4 | 10.5 | 6.5 J | ND | ND | 224 | 6.1 | ND | 3.4 | 1.8 |
| | | | E | 6 | | | 20.63 | 87 | 8.60 | 7.13 | 247.8 | 0.4 | | | | | | | | | |
| | | | E | 9 | | | 20.63 | 87 | 8.59 | 7.10 | 249.4 | 0.9 | | | | | | | | | |
| | | | E | 12 | | | 20.62 | 87 | 8.56 | 7.06 | 250.3 | 1.2 | | | | | | | | | |
| | | | E | 15 | | | 20.62 | 87 | 8.57 | 7.04 | 249.9 | 0.7 | | | | | | | | | |
| | | | E | 18 | | | 20.61 | 87 | 8.54 | 7.03 | 252.1 | 0.7 | | | | | | | | | |
| | | | E | 20 | | | 20.61 | 87 | 8.55 | 7.01 | 252.2 | 16.1 | | | | | | | | | |
| Peters Pond | ECPTP01 | 14-Nov-00 | E | 0 | 12 | 13 | 11.46 | 88 | 10.52 | 7.53 | 256.9 | 1.4 | | | | | | | | | |
| | | | E | 3 | | | 11.44 | 88 | 10.5 | 7.48 | 253.3 | 1.4 | ND | 52.6 | ND | ND | ND | 4.9 | ND | 2.2 | 2.7 |
| | | | E | 6 | | | 11.41 | 88 | 10.47 | 7.45 | 252.6 | 1.2 | | | | | | | | | |
| | | | E | 9 | | | 11.36 | 88 | 10.47 | 7.42 | 252.8 | 1.2 | | | | | | | | | |
| | | | E | 12 | | | 11.35 | 88 | 10.45 | 7.38 | 254 | 1.3 | | | | | | | | | |
| | | | E | 15 | | | 11.35 | 88 | 10.43 | 7.36 | 254.7 | 0.9 | | | | | | | | | |
| | | | E | 18 | | | 11.35 | 88 | 10.43 | 7.35 | 255.8 | 1.0 | | | | | | | | | |
| | | | E | 20 | | | 11.36 | 88 | 10.05 | 7.34 | 255.3 | 30.3 | | | | | | | | | |
| Peters Pond | ECPTP04 | 6-Mar-00 | E | 0 | 24 | 25 | 5.48 | 85 | 12.89 | 7.07 | 250.9 | 2.2 | | | | | | | | | |
| | | | E | 3 | | | 5.49 | 85 | 12.81 | 7.10 | 243.8 | 0.9 | 12.6 | 22.8 | 113 | 1.2 | 338 | 6.7 | 1.6 | 2.5 | 1.8 |
| | | | E | 6 | | | 5.47 | 85 | 12.81 | 7.12 | 245.1 | 0.8 | | | | | | | | | |
| | | | E | 9 | | | 5.46 | 85 | 12.80 | 7.13 | 247.2 | 0.8 | | | | | | | | | |
| | | | E | 12 | | | 5.45 | 86 | 12.79 | 7.14 | 249.0 | 0.8 | | | | | | | | | |
| | | | E | 15 | | | 5.44 | 85 | 12.79 | 7.14 | 250.8 | 0.8 | | | | | | | | | |
| | | | E | 18 | | | 5.45 | 85 | 12.78 | 7.15 | 252.4 | 0.8 | | | | | | | | | |
| | | | E | 21 | | | 5.44 | 85 | 12.78 | 7.15 | 254.0 | 0.8 | | | | | | | | | |
| | | | E | 24 | | | 5.44 | 85 | 12.77 | 7.16 | 253.8 | 0.8 | | | | | | | | | |
| | | | E | 27 | | | 5.44 | 85 | 12.76 | 7.16 | 257.4 | 0.9 | | | | | | | | | |
| | | | E | 30 | | | 5.42 | 85 | 12.76 | 7.16 | 258.2 | 0.8 | | | | | | | | | |
| | | | E | 33 | | | 5.41 | 85 | 12.75 | 7.16 | 259.7 | 0.7 | | | | | | | | | |
| | | | E | 36 | | | 5.41 | 85 | 12.74 | 7.16 | 261.1 | 0.9 | | | | | | | | | |
| | | | E | 39 | | | 5.40 | 85 | 12.74 | 7.16 | 262.4 | 1.1 | | | | | | | | | |
| Peters Pond | ECPTP04 | 11-May-00 | E | 0 | 18 | 19 | 15.27 | 84 | 10.32 | 7.50 | 303.6 | 0.9 | | | | | | | | | |
| | | | E | 3 | | | 15.26 | 84 | 10.40 | 7.48 | 299.1 | 0.9 | 18.8 | ND | 58.3 | 1.6 J | 334 | 11.8 | 1.1 J | 2.3 | 1.2 |
| | | | E | 6 | | | 15.25 | 84 | 10.35 | 7.44 | 293.8 | 0.9 | | | | | | | | | |
| | | | E | 9 | | | 15.21 | 84 | 10.40 | 7.42 | 292.6 | 1.2 | | | | | | | | | |
| | | | E | 12 | | | 15.18 | 84 | 10.39 | 7.38 | 293.9 | 0.9 | | | | | | | | | |
| | | | E | 15 | | | 15.03 | 84 | 10.41 | 7.36 | 294.8 | 0.8 | | | | | | | | | |
| | | | H | 18 | | | 13.16 | 85 | 11.15 | 7.31 | 296.6 | 0.9 | | | | | | | | | |
| | | | H | 21 | | | 12.10 | 85 | 11.25 | 7.27 | 298.7 | 0.9 | | | | | | | | | |
| | | | H | 24 | | | 11.86 | 85 | 11.17 | 7.24 | 300.5 | 0.7 | | | | | | | | | |
| | | | H | 27 | | | 11.45 | 85 | 10.94 | 7.21 | 301.6 | 0.7 | | | | | | | | | |
| | | | H | 30 | | | 11.22 | 85 | 10.75 | 7.17 | 301.9 | 1.4 | 11.8 | ND | 58.4 | 2 J | 312 | 10.5 | 0.7 J | 2.3 | 1.1 |
| | | | H | 33 | | | 11.02 | 85 | 10.31 | 7.12 | 304.2 | 0.9 | | | | | | | | | |
| | | | H | 36 | | | 10.80 | 85 | 9.58 | 7.07 | 306.0 | 1.2 | | | | | | | | | |

**Table 5-7**
**Field and Physicochemical Parameters for Surface Water Locations**
**January - December 2000**

| | | | | | | | YSI - Water Quality Meter | | | | | | Laboratory Analyses | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Study Area | Location Identification | Date | Limnion | Depth (ft) | Secchi Disk (up) (ft) | Secchi Disk (down) (ft) | Temp (°C) | SpC (µS/cm) | DO (mg/L) | pH (std) | ORP (mV) | Turb (NTU) | Alkalinity (mg/L) | Ammonia (µg/L) | Nitrate (µg/L) | Nitrite (µg/L) | Total Nitrogen (µg/L) | Total Phosphorus (µg/L) | Ortho-phosphate (µg/L) | Total Organic Carbon (mg/L) | Chlorophyll-*a* (µg/L) |
| | | | H | 39 | | | 10.78 | 85 | 9.31 | 7.03 | 307.3 | 1.3 | | | | | | | | | |
| | | | H | 42 | | | 10.75 | 85 | 9.00 | 6.86 | 310.3 | 1.9 | | | | | | | | | |
| | | | H | 43 | | | 10.73 | 85 | 8.59 | 6.76 | 309.6 | 1331.5 | | | | | | | | | |
| Peters Pond | ECPTP04 | 12-Jun-00 | E | 0 | 12 | 13 | 19.82 | 85 | 9.43 | 7.26 | 253.1 | 0.7 | | | | | | | | | |
| | | | E | 3 | | | 19.85 | 85 | 9.35 | 7.3 | 248.8 | 0.9 | ND | 9.5 | ND | 4.4 | 265 | 12.9 | ND | 2.8 | 2.7 |
| | | | E | 6 | | | 19.85 | 85 | 9.34 | 7.28 | 247.1 | 1.3 | | | | | | | | | |
| | | | E | 9 | | | 19.85 | 85 | 9.34 | 7.26 | 250.0 | 1.2 | | | | | | | | | |
| | | | E | 12 | | | 19.83 | 85 | 9.34 | 7.26 | 252.0 | 0.7 | | | | | | | | | |
| | | | E | 15 | | | 19.63 | 85 | 9.37 | 7.25 | 254.5 | 0.8 | | | | | | | | | |
| | | | H | 18 | | | 18.40 | 85 | 9.66 | 7.25 | 258.6 | 0.4 | | | | | | | | | |
| | | | H | 21 | | | 17.76 | 85 | 9.66 | 7.25 | 259.8 | 0.2 | | | | | | | | | |
| | | | H | 24 | | | 17.07 | 85 | 9.77 | 7.2 | 265.5 | 0.4 | | | | | | | | | |
| | | | H | 27 | | | 16.12 | 85 | 9.75 | 7.13 | 270.0 | 0.2 | | | | | | | | | |
| | | | H | 30 | | | 14.36 | 85 | 9.45 | 7.08 | 275.6 | 0.3 | ND | 37 | 41.3 | 2.4 | 266 | 11.4 | ND | 2.5 | 2.1 |
| | | | H | 33 | | | 12.72 | 85 | 8.17 | 7.04 | 280.5 | 0.4 | | | | | | | | | |
| | | | H | 36 | | | 11.98 | 86 | 6.60 | 6.77 | 289.2 | 0.4 | | | | | | | | | |
| | | | H | 39 | | | 11.51 | 87 | 3.70 | 6.6 | 295.0 | 0.5 | | | | | | | | | |
| | | | H | 42 | | | 11.27 | 10 | 1.02 | 6.47 | 195.4 | 1334 | | | | | | | | | |
| Peters Pond | ECPTP04 | 17-Aug-00 | E | 0 | 18 | 19 | 23.41 | 84 | 8.81 | 6.67 | 182.4 | 0.2 | | | | | | | | | |
| | | | E | 3 | | | 23.24 | 84 | 8.80 | 6.72 | 177.0 | 0.2 | 13.2 | ND | ND | ND | 223 | 5 J | 0.6 J | 2.77 | 1.5 |
| | | | E | 6 | | | 23.16 | 84 | 8.77 | 6.77 | 177.7 | 0.4 | | | | | | | | | |
| | | | E | 9 | | | 23.12 | 84 | 8.76 | 6.8 | 178.5 | 0.2 | | | | | | | | | |
| | | | E | 12 | | | 23.10 | 84 | 8.74 | 6.84 | 178.4 | 0.1 | | | | | | | | | |
| | | | E | 15 | | | 23.09 | 84 | 8.73 | 6.86 | 179.8 | 0.1 | | | | | | | | | |
| | | | E | 18 | | | 23.08 | 84 | 8.71 | 6.87 | 181.4 | 0.4 | | | | | | | | | |
| | | | E | 21 | | | 23.06 | 84 | 8.65 | 6.89 | 182.6 | 0.6 | | | | | | | | | |
| | | | E | 24 | | | 22.64 | 84 | 8.92 | 6.78 | 190.3 | 0.3 | | | | | | | | | |
| | | | H | 27 | | | 18.29 | 83 | 11.51 | 6.68 | 203.9 | 0.4 | | | | | | | | | |
| | | | H | 30 | | | 16.29 | 83 | 8.84 | 6.56 | 222.4 | 0.9 | | | | | | | | | |
| | | | H | 33 | | | 14.45 | 84 | 2.40 | 6.35 | 236.6 | 0.4 | 15.4 | 49.1 | ND | 2.1 J | 254 | 9.7 | 1.9 J | 2.54 | 3.6 |
| | | | H | 36 | | | 13.83 | 84 | 0.56 | 6.01 | 248.1 | 0.5 | | | | | | | | | |
| | | | H | 39 | | | 12.84 | 89 | 0.20 | 5.96 | 240.2 | 3.3 | | | | | | | | | |
| | | | H | 41 | | | 12.22 | 100 | 0.13 | 5.98 | 179.9 | 10.7 | | | | | | | | | |
| Peters Pond | ECPTP04 | 25-Sep-00 | E | 0 | 16 | 17 | 20.82 | 87 | 8.94 | 7.22 | 247.1 | 0.3 | | | | | | | | | |
| | | | E | 3 | | | 20.82 | 87 | 8.91 | 7.16 | 245.0 | 0.4 | 12.5 | ND | ND | ND | 214 | 7.6 | ND | 3.4 | 2 |
| | | | E | 6 | | | 20.82 | 87 | 8.87 | 7.14 | 243.1 | 0.3 | | | | | | | | | |
| | | | E | 9 | | | 20.82 | 87 | 8.84 | 7.12 | 243.7 | 0.4 | | | | | | | | | |
| | | | E | 12 | | | 20.81 | 87 | 8.84 | 7.10 | 245.4 | 0.3 | | | | | | | | | |
| | | | E | 15 | | | 20.80 | 87 | 8.83 | 7.09 | 245.8 | 0.3 | | | | | | | | | |
| | | | E | 18 | | | 20.80 | 87 | 8.82 | 7.09 | 247.8 | 0.3 | | | | | | | | | |
| | | | E | 21 | | | 20.78 | 87 | 8.80 | 7.08 | 245.8 | 0.5 | | | | | | | | | |
| | | | E | 24 | | | 20.77 | 87 | 8.79 | 7.08 | 247.6 | 0.3 | | | | | | | | | |
| | | | E | 27 | | | 20.73 | 87 | 8.77 | 7.08 | 249.2 | 0.5 | | | | | | | | | |
| | | | E | 30 | | | 20.71 | 87 | 8.76 | 7.06 | 250.1 | 0.3 | | | | | | | | | |
| | | | H | 33 | | | 18.12 | 87 | 4.06 | 6.34 | 282.3 | 2.2 | | | | | | | | | |
| | | | H | 36 | | | 14.84 | 88 | 0.24 | 6.31 | 279.3 | 1.7 | 11.6 | ND | ND | ND | 216 | 6.1 | ND | 3.4 | 2 |
| | | | H | 39 | | | 13.28 | 95 | 0.18 | 6.24 | 249.6 | 7.2 | | | | | | | | | |
| | | | H | 40 | | | 12.69 | 112 | 0.17 | 6.11 | 67.0 | 870.2 | | | | | | | | | |
| Peters Pond | ECPTP04 | 14-Nov-00 | E | 0 | 13 | 14 | 11.59 | 88 | 10.91 | 7.29 | 265.4 | 0.5 | | | | | | | | | |
| | | | E | 3 | | | 11.55 | 88 | 10.75 | 7.25 | 263.1 | 0.4 | ND | 51.4 | ND | ND | ND | 6.1 | ND | 2.3 | 2.1 |
| | | | E | 6 | | | 11.52 | 88 | 10.72 | 7.23 | 262.4 | 0.4 | | | | | | | | | |

**Table 5-7**
**Field and Physicochemical Parameters for Surface Water Locations**
**January - December 2000**

| | | | | | | | YSI - Water Quality Meter | | | | | | Laboratory Analyses | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Study Area | Location Identification | Date | Limnion | Depth (ft) | Secchi Disk (up) (ft) | Secchi Disk (down) (ft) | Temp (°C) | SpC (µS/cm) | DO (mg/L) | pH (std) | ORP (mV) | Turb (NTU) | Alkalinity (mg/L) | Ammonia (µg/L) | Nitrate (µg/L) | Nitrite (µg/L) | Total Nitrogen (µg/L) | Total Phosphorus (µg/L) | Ortho-phosphate (µg/L) | Total Organic Carbon (mg/L) | Chlorophyll-*a* (µg/L) |
| | | | E | 9 | | | 11.51 | 88 | 10.67 | 7.22 | 262.4 | 0.6 | | | | | | | | | |
| | | | E | 12 | | | 11.50 | 88 | 10.61 | 7.22 | 262.9 | 0.2 | | | | | | | | | |
| | | | E | 15 | | | 11.50 | 88 | 10.55 | 7.21 | 263.8 | 0.8 | | | | | | | | | |
| | | | E | 18 | | | 11.50 | 88 | 10.52 | 7.20 | 264.4 | 0.6 | | | | | | | | | |
| | | | E | 21 | | | 11.49 | 88 | 10.50 | 7.19 | 265.3 | 0.6 | | | | | | | | | |
| | | | E | 24 | | | 11.49 | 88 | 10.45 | 7.18 | 266.7 | 0.4 | | | | | | | | | |
| | | | E | 27 | | | 11.49 | 88 | 10.44 | 7.18 | 267.6 | 0.8 | | | | | | | | | |
| | | | E | 30 | | | 11.48 | 88 | 10.41 | 7.17 | 268.3 | 0.5 | | | | | | | | | |
| | | | E | 33 | | | 11.48 | 88 | 10.40 | 7.17 | 268.8 | 0.6 | | | | | | | | | |
| | | | E | 36 | | | 11.48 | 88 | 10.38 | 7.17 | 269.7 | 0.4 | | | | | | | | | |
| | | | E | 39 | | | 11.45 | 88 | 10.26 | 7.16 | 270.2 | 0.6 | | | | | | | | | |
| | | | E | 40 | | | 11.52 | 93 | 5.02 | 7.03 | 168.7 | 1591 | | | | | | | | | |
| Peters Pond | ECPTP05 | 6-Mar-00 | E | 0 | 22 | 23 | 5.46 | 86 | 13.74 | 7.66 | 257.4 | 4.8 | | | | | | | | | |
| | | | E | 3 | | | 5.45 | 86 | 12.89 | 7.43 | 250.1 | 6.1 | 12.8 | 29.1 | 122 | 1.8 | 306 | 6.4 | ND | 2.4 | 1.8 |
| | | | E | 6 | | | 5.44 | 86 | 12.84 | 7.34 | 253.7 | 0.8 | | | | | | | | | |
| | | | E | 9 | | | 5.43 | 86 | 12.83 | 7.31 | 255.3 | 0.7 | | | | | | | | | |
| | | | E | 12 | | | 5.44 | 86 | 12.83 | 7.29 | 257.6 | 0.6 | | | | | | | | | |
| | | | E | 15 | | | 5.43 | 85 | 12.83 | 7.27 | 258.9 | 0.7 | | | | | | | | | |
| | | | E | 18 | | | 5.43 | 86 | 12.83 | 7.25 | 261.3 | 0.7 | | | | | | | | | |
| | | | E | 21 | | | 5.43 | 86 | 12.83 | 7.24 | 262.8 | 0.8 | | | | | | | | | |
| | | | E | 24 | | | 5.43 | 86 | 12.80 | 7.24 | 264.0 | 0.6 | | | | | | | | | |
| | | | E | 27 | | | 5.43 | 86 | 12.79 | 7.23 | 265.5 | 0.6 | | | | | | | | | |
| | | | E | 30 | | | 5.42 | 86 | 12.81 | 7.22 | 266.1 | 0.7 | | | | | | | | | |
| | | | E | 33 | | | 5.42 | 86 | 12.81 | 7.22 | 267.4 | 11.0 | | | | | | | | | |
| Peters Pond | ECPTP05 | 11-May-00 | E | 0 | 18 | 19 | 15.07 | 84 | 10.84 | 7.27 | 285.2 | 0.8 | | | | | | | | | |
| | | | E | 3 | | | 15.09 | 85 | 10.83 | 7.24 | 280.9 | 0.7 | 12.5 | ND | 67.3 | 2.4 J | 319 | 11.4 | 0.7 J | 2.3 | 1.1 |
| | | | E | 6 | | | 15.08 | 84 | 10.81 | 7.23 | 275.7 | 1.0 | | | | | | | | | |
| | | | E | 9 | | | 15.07 | 84 | 10.81 | 7.22 | 274.7 | 0.9 | | | | | | | | | |
| | | | E | 12 | | | 15.07 | 84 | 10.78 | 7.21 | 274.1 | 0.7 | | | | | | | | | |
| | | | E | 15 | | | 15.06 | 84 | 10.80 | 7.21 | 274.8 | 0.8 | | | | | | | | | |
| | | | H | 18 | | | 14.00 | 85 | 11.08 | 7.16 | 279.2 | 0.9 | | | | | | | | | |
| | | | H | 21 | | | 12.64 | 85 | 11.43 | 7.16 | 279.6 | 0.8 | | | | | | | | | |
| | | | H | 24 | | | 12.20 | 85 | 11.40 | 7.14 | 280.0 | 0.8 | 14.7 | 27.8 | 66.8 | 2 J | 323 | 12.7 | 0.7 J | 2.4 | 0.9 |
| | | | H | 27 | | | 11.57 | 85 | 11.30 | 7.13 | 283.9 | 0.7 | | | | | | | | | |
| | | | H | 29 | | | 11.46 | 85 | 11.27 | 7.11 | 282.5 | 14.6 | | | | | | | | | |
| Peters Pond | ECPTP05 | 12-Jun-00 | E | 0 | 17 | 18 | 19.52 | 85 | 9.51 | 7.2 | 177.0 | 0.6 | | | | | | | | | |
| | | | E | 3 | | | 19.54 | 85 | 9.46 | 7.21 | 175.0 | 0.6 | ND | 18.1 | 14.4 | 3.1 | 268 | 11 | ND | 2.7 | 1.4 |
| | | | E | 6 | | | 19.53 | 85 | 9.44 | 7.21 | 176.1 | 0.5 | | | | | | | | | |
| | | | E | 9 | | | 19.52 | 85 | 9.42 | 7.21 | 180.8 | 0.6 | | | | | | | | | |
| | | | E | 12 | | | 19.39 | 85 | 9.34 | 7.19 | 186.1 | 0.5 | | | | | | | | | |
| | | | E | 15 | | | 19.00 | 85 | 9.56 | 7.22 | 193.1 | 0.4 | | | | | | | | | |
| | | | E | 18 | | | 18.27 | 85 | 9.66 | 7.23 | 197.5 | 0.5 | | | | | | | | | |
| | | | E | 21 | | | 17.75 | 85 | 9.68 | 7.22 | 202.0 | 0.4 | | | | | | | | | |
| | | | E | 24 | | | 17.33 | 85 | 9.75 | 7.19 | 208.6 | 0.4 | | | | | | | | | |
| | | | H | 27 | | | 15.59 | 85 | 9.45 | 7.12 | 217.2 | 0.9 | | | | | | | | | |
| | | | H | 29 | | | 13.66 | 85 | 8.69 | 7.08 | 221.5 | 13.7 | | | | | | | | | |
| Peters Pond | ECPTP05 | 17-Aug-00 | E | 0 | 19 | 20 | 23.73 | 84 | 8.96 | 6.44 | 127.1 | 0.1 | | | | | | | | | |
| | | | E | 3 | | | 23.72 | 85 | 8.87 | 6.56 | 130.1 | 0.2 | ND | ND | ND | ND | 207 | 46.3 | 0.6 J | 2.66 | 1.6 |
| | | | E | 6 | | | 23.59 | 85 | 8.81 | 6.67 | 132.2 | 0.7 | | | | | | | | | |
| | | | E | 9 | | | 23.52 | 84 | 8.78 | 6.74 | 135.1 | 0.1 | | | | | | | | | |
| | | | E | 12 | | | 23.48 | 84 | 8.79 | 6.78 | 137.2 | 0.3 | | | | | | | | | |

**Table 5-7**
**Field and Physicochemical Parameters for Surface Water Locations**
**January - December 2000**

| | | | | | | | YSI - Water Quality Meter | | | | | | Laboratory Analyses | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Study Area | Location Identification | Date | Limnion | Depth (ft) | Secchi Disk (up) (ft) | Secchi Disk (down) (ft) | Temp (°C) | SpC (µS/cm) | DO (mg/L) | pH (std) | ORP (mV) | Turb (NTU) | Alkalinity (mg/L) | Ammonia (µg/L) | Nitrate (µg/L) | Nitrite (µg/L) | Total Nitrogen (µg/L) | Total Phosphorus (µg/L) | Ortho-phosphate (µg/L) | Total Organic Carbon (mg/L) | Chlorophyll-*a* (µg/L) |
| | | | E | 15 | | | 23.38 | 84 | 8.76 | 6.79 | 139.4 | 0.2 | | | | | | | | | |
| | | | E | 18 | | | 23.27 | 84 | 8.82 | 6.81 | 142.2 | 0.2 | | | | | | | | | |
| | | | E | 21 | | | 23.23 | 84 | 8.80 | 6.81 | 144.6 | 0.2 | | | | | | | | | |
| | | | E | 24 | | | 23.11 | 84 | 8.77 | 6.82 | 146.3 | 0.2 | | | | | | | | | |
| | | | H | 27 | | | 20.75 | 85 | 10.20 | 6.67 | 163.4 | 0.7 | | | | | | | | | |
| | | | H | 29 | | | 17.52 | 85 | 9.91 | 6.69 | 170.2 | 20.2 | | | | | | | | | |
| Peters Pond | ECPTP05 | 25-Sep-00 | E | 0 | 15 | 16 | 20.93 | 87 | 9.01 | 7.01 | 138.9 | 0.5 | | | | | | | | | |
| | | | E | 3 | | | 20.93 | 87 | 8.91 | 6.97 | 140.4 | 0.4 | 11.8 | ND | ND | ND | 245 | 5.3 | ND | 3.1 | 2 |
| | | | E | 6 | | | 20.93 | 87 | 8.86 | 6.97 | 144.5 | 0.4 | | | | | | | | | |
| | | | E | 9 | | | 20.91 | 87 | 8.85 | 6.96 | 148.7 | 0.4 | | | | | | | | | |
| | | | E | 12 | | | 20.87 | 87 | 8.83 | 6.97 | 152.6 | 0.2 | | | | | | | | | |
| | | | E | 15 | | | 20.86 | 88 | 8.82 | 6.96 | 156.5 | 0.4 | | | | | | | | | |
| | | | E | 18 | | | 20.85 | 87 | 8.81 | 6.97 | 158.4 | 0.3 | | | | | | | | | |
| | | | E | 21 | | | 20.85 | 87 | 8.79 | 6.95 | 162.5 | 0.4 | | | | | | | | | |
| | | | E | 24 | | | 20.83 | 87 | 8.80 | 6.97 | 166.1 | 1.0 | | | | | | | | | |
| | | | E | 27 | | | 20.81 | 87 | 8.80 | 6.96 | 168.2 | 0.3 | | | | | | | | | |
| | | | E | 29 | | | 20.54 | 87 | 8.16 | 6.74 | 186.7 | 10.2 | | | | | | | | | |
| Peters Pond | ECPTP05 | 14-Nov-00 | E | 0 | 14 | 15 | 11.51 | 88 | 10.69 | 7.16 | 247.3 | 0.5 | | | | | | | | | |
| | | | E | 3 | | | 11.52 | 88 | 10.56 | 7.13 | 245.4 | 0.8 | ND | 55.2 | ND | ND | ND | 5.7 | ND | 2.3 | 3.2 |
| | | | E | 6 | | | 11.52 | 88 | 10.52 | 7.12 | 245.6 | 1.0 | | | | | | | | | |
| | | | E | 9 | | | 11.52 | 88 | 10.48 | 7.11 | 246.0 | 0.6 | | | | | | | | | |
| | | | E | 12 | | | 11.50 | 88 | 10.47 | 7.11 | 247.2 | 0.9 | | | | | | | | | |
| | | | E | 15 | | | 11.51 | 88 | 10.44 | 7.11 | 248.4 | 0.8 | | | | | | | | | |
| | | | E | 18 | | | 11.50 | 88 | 10.42 | 7.11 | 249.5 | 1.1 | | | | | | | | | |
| | | | E | 21 | | | 11.49 | 88 | 10.40 | 7.11 | 250.8 | 1.2 | | | | | | | | | |
| | | | E | 24 | | | 11.49 | 88 | 10.38 | 7.11 | 251.5 | 0.7 | | | | | | | | | |
| | | | E | 27 | | | 11.48 | 88 | 10.35 | 7.10 | 252.7 | 0.5 | | | | | | | | | |
| | | | E | 29 | | | 11.47 | 88 | 10.28 | 7.09 | 252.7 | 32.5 | | | | | | | | | |
| Triangle Pond | ECTRP01 | 14-Mar-00 | E | 0 | 10 | 11 | 7.21 | 62 | 12.10 | 6.37 | 333.7 | 3.2 | | | | | | | | | |
| | | | E | 3 | | | 7.20 | 62 | 12.10 | 6.38 | 325.2 | 3.5 | 3.3 | ND | 39 | ND | 213 | 10.2 | 2.3 | 1.8 | 1.9 |
| | | | E | 6 | | | 7.20 | 62 | 12.10 | 6.37 | 322.3 | 3.3 | | | | | | | | | |
| | | | E | 9 | | | 7.20 | 62 | 12.10 | 6.37 | 320.2 | 3.1 | | | | | | | | | |
| | | | E | 12 | | | 7.21 | 62 | 12.11 | 6.37 | 319.2 | 3.3 | | | | | | | | | |
| Triangle Pond | ECTRP01 | 3-May-00 | E | 0 | 14 | 14 | 11.84 | 61 | 12.36 | 6.89 | 283.3 | 1.3 | | | | | | | | | |
| | | | E | 3 | | | 11.83 | 61 | 12.13 | 6.74 | 282.9 | 1.2 | ND | 14.3 | ND | ND | 225 | 15 J | 2 | 1.2 | 4.4 |
| | | | E | 6 | | | 11.82 | 61 | 12.06 | 6.71 | 284.2 | 1.3 | | | | | | | | | |
| | | | E | 9 | | | 11.76 | 61 | 12.00 | 6.67 | 286.6 | 2.0 | | | | | | | | | |
| | | | E | 12 | | | 11.76 | 61 | 11.94 | 6.65 | 288.7 | 1.5 | | | | | | | | | |
| | | | E | 14 | | | 11.79 | 61 | 11.66 | 6.63 | 283.0 | 111.0 | | | | | | | | | |
| Triangle Pond | ECTRP01 | 27-Sep-00 | E | 0 | 11 | 12 | 19.03 | 64 | 8.77 | 6.74 | 271.8 | 1.1 | | | | | | | | | |
| | | | E | 3 | | | 19.01 | 64 | 8.69 | 6.73 | 263.8 | 1.1 | ND | 5.8 J | ND | ND | 181 | 7.9 | 1.3 J | ND | 0.9 |
| | | | E | 6 | | | 18.98 | 64 | 8.67 | 6.64 | 265.1 | 1.2 | | | | | | | | | |
| | | | E | 9 | | | 18.95 | 64 | 8.68 | 6.60 | 265.6 | 1.6 | | | | | | | | | |
| | | | E | 12 | | | 18.88 | 64 | 8.75 | 6.57 | 266.8 | 1.8 | | | | | | | | | |
| | | | E | 14 | | | 18.92 | 64 | 9.49 | 6.60 | 263.0 | 11.2 | | | | | | | | | |

**Table 5-7**
**Field and Physicochemical Parameters for Surface Water Locations**
**January - December 2000**

| | | | | | | | YSI - Water Quality Meter | | | | | | Laboratory Analyses | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Study Area | Location Identification | Date | Limnion | Depth (ft) | Secchi Disk (up) (ft) | Secchi Disk (down) (ft) | Temp (°C) | SpC (µS/cm) | DO (mg/L) | pH (std) | ORP (mV) | Turb (NTU) | Alkalinity (mg/L) | Ammonia (µg/L) | Nitrate (µg/L) | Nitrite (µg/L) | Total Nitrogen (µg/L) | Total Phosphorus (µg/L) | Ortho-phosphate (µg/L) | Total Organic Carbon (mg/L) | Chlorophyll-*a* (µg/L) |
| Triangle Pond | ECTRP03 | 14-Mar-00 | E | 0 | 12 | 13 | 7.26 | 62 | 12.36 | 7.53 | 343.8 | 3.0 | | | | | | | | | |
| | | | E | 3 | | | 7.18 | 62 | 12.22 | 7.30 | 341.9 | 2.7 | 4 | ND | 37.9 | ND | 221 | 9 | 2.3 | 1.8 | 2.6 |
| | | | E | 6 | | | 7.07 | 62 | 12.18 | 7.19 | 339.4 | 2.7 | | | | | | | | | |
| | | | E | 9 | | | 7.01 | 62 | 12.16 | 7.10 | 339.0 | 2.6 | | | | | | | | | |
| | | | E | 12 | | | 6.99 | 62 | 12.17 | 7.04 | 340.1 | 2.6 | | | | | | | | | |
| Triangle Pond | ECTRP03 | 3-May-00 | E | 0 | 15 | 15 | 12.51 | 61 | 9.51 | 7.02 | 305.1 | 1.9 | | | | | | | | | |
| | | | E | 3 | | | 12.49 | 61 | 9.70 | 6.95 | 299.2 | 1.2 | ND | 5.5 J | ND | 1.7 J | 225 | 17.8 | 0.7 J | 1.2 | 4.5 |
| | | | E | 6 | | | 12.34 | 61 | 9.78 | 6.90 | 299.8 | 1.4 | | | | | | | | | |
| | | | E | 9 | | | 12.32 | 61 | 9.86 | 6.66 | 310.3 | 1.5 | | | | | | | | | |
| | | | E | 12 | | | 12.07 | 61 | 10.09 | 6.65 | 308.8 | 2.0 | | | | | | | | | |
| | | | E | 15 | | | 11.99 | 61 | 10.21 | 6.60 | 310.9 | 89.1 | | | | | | | | | |
| Triangle Pond | ECTRP03 | 27-Sep-00 | E | 0 | 12 | 13 | 18.70 | 64 | 8.99 | 6.52 | 242.2 | 1.2 | | | | | | | | | |
| | | | E | 3 | | | 18.63 | 64 | 8.85 | 6.48 | 240.4 | 1.4 | ND | 6.1 J | ND | ND | 195 | 7.5 | 0.9 J | ND | 1.2 |
| | | | E | 6 | | | 18.55 | 64 | 8.77 | 6.43 | 241.4 | 1.2 | | | | | | | | | |
| | | | E | 9 | | | 18.51 | 64 | 8.74 | 6.39 | 244.0 | 1.2 | | | | | | | | | |
| | | | E | 12 | | | 18.46 | 64 | 8.78 | 6.28 | 247.1 | 1.9 | | | | | | | | | |
| | | | E | 15 | | | 18.49 | 64 | 8.71 | 6.30 | 244.5 | 36.2 | | | | | | | | | |
| Triangle Pond | ECTRP05 | 14-Mar-00 | E | 0 | 11 | 12 | 7.33 | 62 | 12.09 | 6.54 | 332.5 | 5.3 | | | | | | | | | |
| | | | E | 3 | | | 7.33 | 62 | 12.09 | 6.52 | 327.9 | 4.9 | 4.3 | ND | 40.2 | ND | 210 | 10.2 | 2.3 | 1.8 | 2.7 |
| | | | E | 6 | | | 7.28 | 62 | 12.08 | 6.50 | 324.1 | 4.7 | | | | | | | | | |
| | | | E | 9 | | | 7.27 | 62 | 12.08 | 6.49 | 323.3 | 4.1 | | | | | | | | | |
| | | | E | 12 | | | 7.26 | 62 | 12.06 | 6.47 | 323.1 | 3.7 | | | | | | | | | |
| | | | E | 15 | | | 7.27 | 62 | 12.07 | 6.46 | 322.9 | 3.3 | | | | | | | | | |
| | | | E | 18 | | | 7.27 | 62 | 12.07 | 6.46 | 322.8 | 3.4 | | | | | | | | | |
| | | | E | 21 | | | 7.25 | 62 | 12.07 | 6.43 | 323.2 | 3.7 | | | | | | | | | |
| | | | E | 24 | | | 7.19 | 62 | 12.06 | 6.43 | 322.9 | 3.8 | | | | | | | | | |
| Triangle Pond | ECTRP05 | 3-May-00 | E | 0 | 15 | 16 | 12.26 | 61 | 11.83 | 6.58 | 316.5 | 1.4 | | | | | | | | | |
| | | | E | 3 | | | 12.22 | 61 | 11.76 | 6.50 | 312.9 | 2.0 | ND | 5.2 J | ND | 2.4 J | 224 | 17.8 | 1 J | 1.2 | 7.3 |
| | | | E | 6 | | | 12.21 | 61 | 11.75 | 6.45 | 312.1 | 2.6 | | | | | | | | | |
| | | | E | 9 | | | 12.02 | 61 | 11.72 | 6.45 | 311.6 | 1.3 | | | | | | | | | |
| | | | E | 12 | | | 11.79 | 61 | 11.72 | 6.44 | 312.1 | 1.8 | | | | | | | | | |
| | | | E | 15 | | | 11.63 | 61 | 11.68 | 6.40 | 315.6 | 1.1 | | | | | | | | | |
| | | | E | 18 | | | 11.50 | 61 | 11.69 | 6.32 | 318.6 | 1.1 | | | | | | | | | |
| | | | E | 21 | | | 11.00 | 61 | 11.58 | 6.28 | 322.3 | 1.4 | | | | | | | | | |
| | | | E | 24 | | | 10.60 | 61 | 11.45 | 6.29 | 322.7 | 1.5 | | | | | | | | | |
| | | | E | 26 | | | 10.43 | 62 | 10.98 | 6.15 | 306.3 | 260.4 | | | | | | | | | |

**Table 5-7**
**Field and Physicochemical Parameters for Surface Water Locations**
**January - December 2000**

| | | | | | | | YSI - Water Quality Meter | | | | | | Laboratory Analyses | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Study Area** | **Location Identification** | **Date** | **Limnion** | **Depth (ft)** | **Secchi Disk (up) (ft)** | **Secchi Disk (down) (ft)** | **Temp (°C)** | **SpC (µS/cm)** | **DO (mg/L)** | **pH (std)** | **ORP (mV)** | **Turb (NTU)** | **Alkalinity (mg/L)** | **Ammonia (µg/L)** | **Nitrate (µg/L)** | **Nitrite (µg/L)** | **Total Nitrogen (µg/L)** | **Total Phosphorus (µg/L)** | **Ortho-phosphate (µg/L)** | **Total Organic Carbon (mg/L)** | **Chlorophyll-*a* (µg/L)** |
| Triangle Pond | ECTRP05 | 27-Sep-00 | E | 0 | 11 | 12 | 19.59 | 64 | 8.89 | 6.44 | 242.5 | 1.4 | | | | | | | | | |
| | | | E | 3 | | | 19.26 | 64 | 8.81 | 6.37 | 243.2 | 1.3 | ND | 5.1 J | ND | ND | ND | 7.9 | 0.9 J | ND | 1.3 |
| | | | E | 6 | | | 19.16 | 64 | 8.75 | 6.31 | 245.0 | 1.3 | | | | | | | | | |
| | | | E | 9 | | | 19.14 | 64 | 8.74 | 6.28 | 245.2 | 1.5 | | | | | | | | | |
| | | | E | 12 | | | 19.10 | 64 | 8.69 | 6.27 | 247.0 | 1.6 | | | | | | | | | |
| | | | E | 15 | | | 19.05 | 64 | 8.65 | 6.26 | 247.3 | 1.6 | | | | | | | | | |
| | | | E | 18 | | | 18.98 | 64 | 8.57 | 6.25 | 248.6 | 2.3 | | | | | | | | | |
| | | | E | 21 | | | 18.95 | 64 | 8.55 | 6.23 | 251.1 | 2.3 | | | | | | | | | |
| | | | E | 24 | | | 18.91 | 64 | 8.47 | 6.22 | 251.9 | 2.7 | | | | | | | | | |
| | | | E | 26 | | | 18.89 | 64 | 8.41 | 6.19 | 255.2 | 111.2 | | | | | | | | | |

Data Source for YSI values: Jacobs Engineering Group Inc., 29 January 2001, Site Environmental Evaluation (SEE) database

Data Source for laboratory values: AFCEE, 01 February 2001, MMR-AFCEE Data Warehouse

**Limnion**
E = epilimnion
H = hypolimnion

**YSI - Water Quality Meter**
DO = dissolved oxygen
ORP = oxidation-reduction potential
SpC = specific conductivity
Temp = temperature
Turb = turbidity

**Units of Measure**
$^{o}$C = degrees Celsius
ft = feet
mg/L = milligrams per liter
mV = millivolts
NTU = nephelometric turbidity units
std = standard units
µg/L = micrograms per liter
µS/cm = microsiemens per centimeter

**Miscellaneous**
J = estimated value
ND = not detected
YSI = Yellow Springs Instruments, Inc.

The accuracy of the YSI readings are as follows: temperature (+/- 0.15%), specific conductivity (+/- 0.5% of reading plus 1 µS/cm), DO (for instrument readings 0-20 mg/L, +/- 0.2 mg/L or for instrument readings 20-50 mg/L, +/- 0.6 mg/L) pH (+/- 0.2 units), ORP (+/- 20 mV), turbidity (the greater of +/- 5% of reading or +/- 2 NTU).

# Table 5-8
# FS-12 Surface Water Descriptive Statistics for Physicochemical Parameters

### Alkalinity (mg/L)

| Pond | n | mean | sd | min | max | LCL | UCL |
|---|---|---|---|---|---|---|---|
| Snake | 9 | 4.6 | 1.5 | 2.5 | 6.5 | 3.5 | 5.8 |
| Peters (reference) | 18 | 10.0 | 4.1 | 2.9 | 18.8 | 8.0 | 12.1 |
| Triangle (reference) | 9 | 2.9 | 1.0 | 1.7 | 4.3 | 2.1 | 3.7 |

### Total Phosphorus (μg/L)

| Pond | n | mean | sd | min | max | LCL | UCL |
|---|---|---|---|---|---|---|---|
| Snake | 9 | 10.2 | 2.5 | 8.1 | 14.2 | 8.3 | 12.1 |
| Peters (reference) | 18 | 9.9 | 9.4 | 4.9 | 46.3 | 5.2 | 14.6 |
| Triangle (reference) | 9 | 11.5 | 4.2 | 7.5 | 17.8 | 8.2 | 14.7 |

### Total Orthophosphate (μg/L)

| Pond | n | mean | sd | min | max | LCL | UCL |
|---|---|---|---|---|---|---|---|
| Snake | 9 | 1.1 | 0.3 | 0.7 | 1.7 | 0.8 | 1.3 |
| Peters (reference) | 18 | 0.7 | 0.4 | 0.3 | 1.6 | 0.5 | 0.9 |
| Triangle (reference) | 9 | 1.5 | 0.7 | 0.7 | 2.3 | 1.0 | 2.1 |

### Ammonia (μg/L)

| Pond | n | mean | sd | min | max | LCL | UCL |
|---|---|---|---|---|---|---|---|
| Snake | 9 | 4.3 | 3.3 | 2.5 | 12.3 | 1.7 | 6.8 |
| Peters (reference) | 18 | 20.3 | 16.8 | 2.5 | 55.2 | 11.9 | 28.6 |
| Triangle (reference) | 9 | 5.5 | 3.6 | 2.5 | 14.3 | 2.7 | 8.3 |

### Nitrate (μg/L)

| Pond | n | mean | sd | min | max | LCL | UCL |
|---|---|---|---|---|---|---|---|
| Snake | 9 | 3.5 | 4.1 | 0.5 | 10.9 | 0.4 | 6.6 |
| Peters (reference) | 18 | 34.5 | 43.0 | 0.5 | 122.0 | 13.1 | 55.9 |
| Triangle (reference) | 9 | 14.9 | 18.2 | 1.3 | 40.2 | 0.9 | 28.8 |

### Nitrite (μg/L)

| Pond | n | mean | sd | min | max | LCL | UCL |
|---|---|---|---|---|---|---|---|
| Snake | 9 | 1.4 | 1.1 | 0.7 | 3.4 | 0.5 | 2.2 |
| Peters (reference) | 18 | 1.4 | 1.0 | 0.6 | 4.4 | 0.9 | 1.9 |
| Triangle (reference) | 9 | 1.3 | 0.6 | 0.6 | 2.4 | 0.8 | 1.7 |

### Nitrogen (μg/L)

| Pond | n | mean | sd | min | max | LCL | UCL |
|---|---|---|---|---|---|---|---|
| Snake | 9 | 213 | 61 | 164 | 368 | 167 | 260 |
| Peters (reference) | 18 | 268 | 90 | 123 | 519 | 224 | 313 |
| Triangle (reference) | 9 | 189 | 71 | 4 | 225 | 134 | 243 |

### Total Organic Carbon (mg/L)

| Pond | n | mean | sd | min | max | LCL | UCL |
|---|---|---|---|---|---|---|---|
| Snake | 9 | 1.9 | 0.6 | 1.0 | 2.7 | 10.4 | 2.4 |
| Peters (reference) | 18 | 2.5 | 0.6 | 1.2 | 3.4 | 2.2 | 2.8 |
| Triangle (reference) | 9 | 1.4 | 0.3 | 1.0 | 8.0 | 1.2 | 1.6 |

### Chlorophyll *a* (μg/L)

| Pond | n | mean | sd | min | max | LCL | UCL |
|---|---|---|---|---|---|---|---|
| Snake | 9 | 3.8 | 1.7 | 1.9 | 6.3 | 2.5 | 5.1 |
| Peters (reference) | 18 | 1.9 | 0.6 | 1.1 | 3.2 | 1.6 | 2.1 |
| Triangle (reference) | 9 | 3.0 | 2.1 | 0.9 | 7.3 | 1.4 | 4.6 |

Data Source: AFCEE, 14 March 2001, MMR-AFCEE Data Warehouse

Note: All measurements summarized in this table were taken from a depth of 3 feet in the water column.

LCL = 95% Lower Confidence Level
max = maximum value observed
mg/L = milligrams per liter
min = minimum value observed

n = number of observations
sd = standard deviation of population
UCL = 95% Upper Confidence Level
μg/L = micrograms per liter

## Table 7-1
## FS-12 Groundwater Monitoring Network Recommendations for EDB Monitoring

| Location Identification | Screen Interval (ft msl) | Well Type | Rationale for Location | Sampled for EDB in SPEIM Network? | Important for Spatial Characterization? | Considered in Particle Tracking? | Recommended for Characterization of EDB Contamination | Justification |
|---|---|---|---|---|---|---|---|---|
| 90EW0001 | 5.06 to -55.67 | EW | Monitor extraction well concentrations. | No | Yes | No | No | Well Screen Not Representative |
| 90EW0002 | 5.58 to -54.42 | EW | Monitor extraction well concentrations. | No | Yes | No | No | Well Screen Not Representative |
| 90EW0003 | 3.25 to -57.15 | EW | Monitor extraction well concentrations. | No | Yes | No | No | Well Screen Not Representative |
| 90EW0006 | 5.89 to -54.81 | EW | Monitor extraction well concentrations. | Yes | Yes | No | Yes | |
| 90EW0007 | -0.73 to -61.18 | EW | Monitor extraction well concentrations. | Yes | Yes | No | Yes | |
| 90EW0008 | 6.02 to -55.48 | EW | Monitor extraction well concentrations. | Yes | Yes | No | Yes | |
| 90EW0009 | 6.25 to -53.75 | EW | Monitor extraction well concentrations. | Yes | Yes | No | Yes | |
| 90EW0010 | 23.84 to -36.16 | EW | Monitor extraction well concentrations. | Yes | Yes | No | Yes | |
| 90EW0011 | 15.41 to -44.59 | EW | Monitor extraction well concentrations. | Yes | Yes | No | Yes | |
| 90EW0012 | 15.1 to -44.9 | EW | Monitor extraction well concentrations. | Yes | Yes | No | Yes | |
| 90EW0013 | 9.02 to -51.8 | EW | Monitor extraction well concentrations. | Yes | Yes | No | Yes | |
| 90EW0014 | 4.41 to -55.59 | EW | Monitor extraction well concentrations. | Yes | Yes | No | Yes | |
| 90EW0015 | 5.41 to -55.34 | EW | Monitor extraction well concentrations. | Yes | Yes | No | Yes | |
| 90EW0016 | 6.13 to -57.57 | EW | Monitor extraction well concentrations. | Yes | Yes | No | Yes | |
| 90EW0017 | 5.21 to -34.79 | EW | Monitor extraction well concentrations. | Yes | Yes | No | Yes | |
| 90EW0018 | 8.08 to -52.78 | EW | Monitor extraction well concentrations. | Yes | Yes | No | Yes | |
| 90EW0019 | 2.93 to -62.07 | EW | Monitor extraction well concentrations. | Yes | Yes | No | Yes | |
| 90EW0020 | 11.22 to -48.78 | EW | Monitor extraction well concentrations. | Yes | Yes | No | Yes | |
| 90EW0021 | 10.02 to -51.56 | EW | Monitor extraction well concentrations. | Yes | Yes | No | Yes | |
| 90EW0022 | 8.91 to -51.09 | EW | Monitor extraction well concentrations. | Yes | Yes | No | Yes | |
| 90EW0023 | 16.08 to -43.92 | EW | Monitor extraction well concentrations. | Yes | Yes | No | Yes | |
| 90EW0024 | 12.67 to -47.33 | EW | Monitor extraction well concentrations. | Yes | Yes | No | Yes | |
| 90EW0025 | 4.6 to -55.4 | EW | Monitor extraction well concentrations. | Yes | Yes | No | Yes | |
| 90EW0026 | 4.42 to -55.58 | EW | Monitor extraction well concentrations. | Yes | Yes | No | Yes | |
| 90EW0027 | 5.28 to -54.72 | EW | Monitor extraction well concentrations. | Yes | Yes | No | Yes | |
| 90EW0028 | 14.23 to -45.77 | EW | Monitor extraction well concentrations. | Yes | Yes | No | Yes | |
| 90EW0029 | 17.14 to -42.86 | EW | Monitor extraction well concentrations. | Yes | Yes | No | Yes | |
| 90EW0030 | 12.9 to -47.1 | EW | Monitor extraction well concentrations. | Yes | Yes | No | Yes | |

**Table 7-1**
**FS-12 Groundwater Monitoring Network Recommendations for EDB Monitoring**

| Location Identification | Screen Interval (ft msl) | Well Type | Rationale for Location | Sampled for EDB in SPEIM Network? | Important for Spatial Characterization? | Considered in Particle Tracking? | Recommended for Characterization of EDB Contamination | Justification |
|---|---|---|---|---|---|---|---|---|
| 90EW0031 | 29.60 to -30.40 | EW | Monitor extraction well concentrations. | Yes | Yes | No | Yes | |
| 90JB0001B | 37.55 to 32.55 | FM | Plume definition in the vicinity of the JBT plume. | Yes | No | Yes | No | Global Kriging Weight |
| 90JB0001C | -7.33 to -12.33 | FM | Plume definition in the vicinity of the JBT plume. | Yes | Yes | Yes | Yes | |
| 90JB0001D | -32.43 to -37.43 | FM | Plume definition in the vicinity of the JBT plume. | Yes | No | Yes | No | Global Kriging Weight |
| 90JB0004A | 4.00 to -1.00 | FM, SD | Plume definition in the vicinity of the JBT plume. | Yes | Yes | Yes | Yes | |
| 90JB0004C | 35.84 to 30.84 | FM, SD | Plume definition in the vicinity of the JBT plume. | Yes | Yes | Yes | Yes | |
| 90JB0006B | -27.22 to -32.22 | SU, SD | Breakthrough/reinjection monitoring near southern reinjection well fence. | Yes | Yes | Yes | Yes | |
| 90MP0059A | -69.99 to -72.49 | SU | Delineation of the plumelet. | No | Yes | No | No | |
| 90MP0059B | -40.49 to -42.99 | SU | Delineation of the plumelet. | Emergency | No | No | Yes | Re-evaluate after two rounds |
| 90MP0059C | -15.99 to -18.49 | SU | Delineation of the plumelet. | No | Yes | No | No | |
| 90MP0059D | 8.5 to 6.01 | SU | Monitor ambient upgradient groundwater quality, Snake Pond (study area). | No | No | No | No | |
| 90MP0059E | 33.01 to 30.51 | SU | Delineation of the plumelet. | No | No | No | No | |
| 90MP0059F | 57.51 to 55.01 | SU | Delineation of the plumelet. | No | No | No | No | |
| 90MP0060A | -87.25 to -89.75 | FM/MP/P | Delineation of the plumelet. | Emergency | Not Considered | No | Yes | Re-evaluate after two rounds |
| 90MP0060B | -67.75 to -70.25 | FM/MP/P | Delineation of the plumelet. | Emergency | No | No | Yes | Re-evaluate after two rounds |
| 90MP0060C | -43.2 to -45.75 | FM/MP/P | Monitor water quality entering Snake Pond downgradient of ETR (study area). | Yes | Not Considered | No | Yes | Re-evaluate after two rounds |
| 90MP0060D | -18.7 to -21.25 | FM/MP/P | Plume definition monitoring near Snake Pond. | Yes | Yes | No | Yes | |
| 90MP0060E | -3.25 to -5.75 | FM/MP/P | Plume definition monitoring near Snake Pond. | Emergency | No | No | Yes | Re-evaluate after two rounds |

**Table 7-1**
**FS-12 Groundwater Monitoring Network Recommendations for EDB Monitoring**

| Location Identification | Screen Interval (ft msl) | Well Type | Rationale for Location | Sampled for EDB in SPEIM Network? | Important for Spatial Characterization? | Considered in Particle Tracking? | Recommended for Characterization of EDB Contamination | Justification |
|---|---|---|---|---|---|---|---|---|
| 90MP0060F | 36.2 to 33.75 | FM/MP/P | Monitor water quality entering Snake Pond downgradient of ETR (study area). | Emergency | No | No | Yes | Re-evaluate after two rounds |
| 90MW0001 | 25.70 to 20.70 | SU | Source area monitoring of FS-12 plume. | Yes | No | Yes | No | Global Kriging Weight |
| 90MW0002 | 71.40 to 61.40 | SU | Source area monitoring of FS-12 plume. | Yes | No | Yes | No | Global Kriging Weight |
| 90MW0003 | 12.90 to 7.90 | SU, SD | Plume definition in the core of the plume. | Yes | No | Yes | No | Global Kriging Weight |
| 90MW0005 | -27.5 to -32.5 | SU, SD | Plume definition, and flow in the core of the plume. | Yes | Yes | Yes | Yes | |
| 90MW0007 | -21.80 to -26.80 | SU | Source area monitoring of FS-12 plume. | Yes | No | Yes | No | Global Kriging Weight |
| 90MW0009 | 12.40 to 7.40 | | Plume definition along the west side of the plume | No | No | No | No | |
| 90MW0010 | 62.70 to 57.70 | FM | Monitoring downgradient of treatment system. | No | No | No | No | |
| 90MW0011 | 32.70 to 27.70 | FM | Monitoring downgradient of treatment system. | No | No | No | No | |
| 90MW0015 | -17.19 to -22.19 | FM, SD | Plume definition in the central portion of the plume. Vertical gradients and groundwater flow on the north side of Snake Pond. | Yes | Yes | Yes | Yes | |
| 90MW0020 | -8.5 to -13.5 | FM, SD | Plume definition in the central portion of the plume. | Yes | No | Yes | No | Global Kriging Weight |
| 90MW0025 | -8.50 to -13.50 | FM | Plume definition along the southern core of the plume. | Yes | Yes | Yes | Yes | |
| 90MW0027 | -26.73 to -31.73 | FM | Plume definition in the northeast portion of the plume. | Yes | No | Yes | No | Global Kriging Weight |
| 90MW0028 | -31.64 to -36.64 | FM, SD | Plume definition along the southeast portion of the plume. | Yes | Yes | Yes | Yes | |
| 90MW0033 | -2.63 to -7.59 | SU, SD | Plume definition along the eastern side of the plume. | Yes | No | Yes | No | Global Kriging Weight |
| 90MW0034 | 37.30 to 32.51 | SU | Source area monitoring of FS-12 plume. | Yes | No | Yes | Yes | Regulatory Request |
| 90MW0036 | 19.39 to 14.49 | SU | Plume definition in the northeast portion of the plume. | Yes | No | Yes | No | Global Kriging Weight |
| 90MW0040 | -39.94 to -44.85 | FM, SD | Plume definition at the southern edge of the core of the plume. | Yes | No | Yes | Yes | Regulatory Request |

**Table 7-1**
**FS-12 Groundwater Monitoring Network Recommendations for EDB Monitoring**

| Location Identification | Screen Interval (ft msl) | Well Type | Rationale for Location | Sampled for EDB in SPEIM Network? | Important for Spatial Characterization? | Considered in Particle Tracking? | Recommended for Characterization of EDB Contamination | Justification |
|---|---|---|---|---|---|---|---|---|
| 90MW0041 | 34.20 to 29.37 | SU | Source area monitoring of FS-12 plume. | Yes | No | Yes | No | Global Kriging Weight |
| 90MW0042 | 0.95 to -3.95 | FM, SD | Plume definition in the southeastern edge of the plume. | Yes | Yes | Yes | Yes | |
| 90MW0049 | -93.14 to -98.14 | FM | Delineation of the plumelet. | Emergency | No | No | Yes | Re-evaluate after two rounds |
| 90MW0050 | -2.77 to -7.57 | FM, SD | Plume definition southwest of the plume and northeast of Snake Pond. | Yes | Yes | No | Yes | |
| 90MW0053 | -39.09 to -44.09 | FM, SD | Plume definition along the southern extraction well fence. | Yes | Yes | No | Yes | |
| 90MW0054 | -23.24 to -28.24 | FM | Groundwater flow west of the plume and north of Snake Pond. | No | No | No | No | |
| 90MW0055 | -68.15 to -73.15 | FM | Plume extent monitoring under the southern extraction well fence. | Yes | No | Yes | No | Global Kriging Weight |
| 90MW0056 | -74.93 to -79.93 | SU, SD | Plume extent monitoring under the southern extraction well fence. | Yes | No | No | No | Global Kriging Weight |
| 90MW0058 | -49.20 to -54.20 | FM | Monitoring crossgradient of treatment system. | Emergency | Not Considered | No | Yes | Re-evaluate after two rounds |
| 90MW0064 | -61.45 to -66.45 | FM | Breakthrough monitoring on the southeast edge of the plume. | Yes | Yes | Yes | Yes | |
| 90MW0064A | 38.14 to 33.14 | FM | Breakthrough monitoring on the southeast edge of the plume. | Yes | Yes | Yes | Yes | |
| 90MW0066 | -56.14 to -61.14 | FM | Breakthrough/reinjection monitoring along the southern reinjection well fence. | Yes | No | Yes | No | Global Kriging Weight |
| 90MW0066A | -7.59 to -12.59 | FM | Breakthrough/reinjection monitoring along the southern reinjection well fence. | Yes | Yes | Yes | Yes | |
| 90MW0068 | 0.40 to -4.60 | FM | Breakthrough/reinjection monitoring along the southeast edge of the plume. | Yes | Yes | Yes | Yes | |
| 90MW0070 | -7.39 to -12.39 | FM | Plume definition and extent along the west-central edge of the plume. | Yes | No | Yes | No | Global Kriging Weight |
| 90MW0076 | -6.97 to -12.97 | FM | Plume definition along the central axis. | Yes | Yes | Yes | Yes | |
| 90MW0077 | -3.61 to -8.61 | FM | Breakthrough monitoring along the southeast edge of the plume. | Yes | Yes | Yes | Yes | |
| 90MW0078 | -6.43 to -11.43 | FM | Breakthrough monitoring along the southern edge of the plume. | Yes | Yes | No | Yes | |

**Table 7-1**
**FS-12 Groundwater Monitoring Network Recommendations for EDB Monitoring**

| Location Identification | Screen Interval (ft msl) | Well Type | Rationale for Location | Sampled for EDB in SPEIM Network? | Important for Spatial Characterization? | Considered in Particle Tracking? | Recommended for Characterization of EDB Contamination | Justification |
|---|---|---|---|---|---|---|---|---|
| 90MW0079A | 5.25 to 0.25 | FM | Breakthrough monitoring along the southern extraction well fence. | Yes | No | No | No | Global Kriging Weight |
| 90MW0079B | -34.79 to -39.79 | FM | Breakthrough monitoring along the southern extraction well fence. | Yes | Yes | No | Yes | |
| 90MW0079C | -68.80 to -73.80 | FM | Plume extent monitoring under the southern extraction well fence. | Yes | No | No | No | Global Kriging Weight |
| 90MW0080 | -19.91 to -24.91 | SU | Plume definition and extent along the west-central edge of the plume. | Yes | Yes | Yes | Yes | |
| 90MW0081 | 35.75 to 30.75 | FM | Plume definition along the central axis. | Yes | No | Yes | No | Global Kriging Weight |
| 90MW0083 | 25.26 to 20.26 | FM | Breakthrough monitoring at southern reinjection well fence. | Yes | No | Yes | No | Global Kriging Weight |
| 90MW0084A | -24.24 to -29.24 | FM | Breakthrough monitoring along the central axis. | Yes | Yes | Yes | Yes | |
| 90MW0084B | 30.89 to 25.89 | FM | Breakthrough monitoring along the central axis. | Yes | Yes | Yes | Yes | |
| 90MW0085A | -10.55 to -15.55 | FM | Reinjection impact monitoring near Snake Pond and downgradient of the southern reinjection well fence. | Yes | Yes | Yes | Yes | |
| 90MW0085B | 24.45 to 19.45 | FM | Reinjection impact monitoring near Snake Pond and downgradient of the southern reinjection well fence. | Yes | No | Yes | No | Global Kriging Weight |
| 90MW0086A | -65.29 to -70.29 | SU | Monitoring for contaminants not captured by ETR system. | Yes | No | Yes | No | Global Kriging Weight |
| 90MW0086B | -30.29 to -35.29 | SU | Monitoring for contaminants not captured by ETR system. | Yes | No | Yes | No | Global Kriging Weight |
| 90MW0086C | -0.68 to -5.78 | FM | Monitoring for contaminants not captured by ETR system. | Yes | Yes | Yes | Yes | |
| 90MW0086D | 30.92 to 25.92 | SU | Monitoring for contaminants not captured by ETR system. | Yes | No | Yes | No | Global Kriging Weight |
| 90MW0087A | -30.74 to -35.74 | SU | Monitoring for contaminants not captured by ETR system. | Yes | Yes | Yes | Yes | |
| 90MW0087B | 34.26 to 29.26 | SU | Monitoring for contaminants not captured by ETR system. | Yes | Yes | Yes | Yes | |
| 90MW0088A | -40.88 to -45.88 | SU | Monitoring for contaminants not captured by ETR system. | Yes | Yes | Yes | Yes | |

**Table 7-1**
**FS-12 Groundwater Monitoring Network Recommendations for EDB Monitoring**

| Location Identification | Screen Interval (ft msl) | Well Type | Rationale for Location | Sampled for EDB in SPEIM Network? | Important for Spatial Characterization? | Considered in Particle Tracking? | Recommended for Characterization of EDB Contamination | Justification |
|---|---|---|---|---|---|---|---|---|
| 90MW0088B | 13.92 to 8.92 | SU | Monitoring for contaminants not captured by ETR system. | Yes | Yes | Yes | Yes | |
| 90MW0089A | -81.23 to -86.23 | FM | Monitoring for contaminants not captured by ETR system. | Yes | No | No | No | Global Kriging Weight |
| 90MW0089B | -50.23 to -55.23 | FM | Monitoring for contaminants not captured by ETR system. | Yes | Yes | Yes | Yes | |
| 90MW0089C | -30.07 to -35.07 | FM | Monitoring for contaminants not captured by ETR system. | Yes | Yes | Yes | Yes | |
| 90MW0089D | -5.07 to -10.07 | FM | Monitoring for contaminants not captured by ETR system. | Yes | Yes | No | Yes | |
| 90MW0089E | 25.08 to 20.08 | FM | Monitoring for contaminants not captured by ETR system. | Yes | Yes | Yes | Yes | |
| 90MW0089F | 60.08 to 55.08 | FM | Monitoring for contaminants not captured by ETR system. | Yes | No | Yes | Yes | Breakthrough Monitoring |
| 90MW0090A | -74.69 to -79.69 | FM | Monitoring for contaminants not captured by ETR system. | Yes | Yes | Yes | Yes | |
| 90MW0090B | -54.49 to -59.49 | SU | Monitoring for contaminants not captured by ETR system. | Yes | Yes | Yes | Yes | |
| 90MW0090C | -34.78 to -39.68 | SU | Monitoring for contaminants not captured by ETR system. | Yes | Yes | No | Yes | |
| 90MW0090D | -9.58 to -14.48 | SU | Monitoring for contaminants not captured by ETR system. | Yes | Yes | No | Yes | |
| 90MW0090E | 20.31 to 15.31 | FM | Monitoring for contaminants not captured by ETR system. | Yes | Yes | Yes | Yes | |
| 90MW0090F | 55.31 to 50.31 | SU | Monitoring for contaminants not captured by ETR system. | Yes | Yes | Yes | Yes | |
| 90MW0091A | -71.99 to -76.99 | SU | Monitoring for contaminants not captured by ETR system. | Yes | No | No | No | Global Kriging Weight |
| 90MW0091B | -49.99 to -54.99 | FM | Monitoring for contaminants not captured by ETR system. | Yes | No | No | No | Global Kriging Weight |
| 90MW0091C | -29.96 to -34.96 | FM | Monitoring for contaminants not captured by ETR system. | Yes | Yes | Yes | Yes | |
| 90MW0091D | -4.96 to -9.96 | FM | Monitoring for contaminants not captured by ETR system. | Yes | No | Yes | No | Global Kriging Weight |
| 90MW0091E | 20.08 to 15.08 | SU | Monitoring for contaminants not captured by ETR system. | Yes | No | Yes | No | Global Kriging Weight |

**Table 7-1**
**FS-12 Groundwater Monitoring Network Recommendations for EDB Monitoring**

| Location Identification | Screen Interval (ft msl) | Well Type | Rationale for Location | Sampled for EDB in SPEIM Network? | Important for Spatial Characterization? | Considered in Particle Tracking? | Recommended for Characterization of EDB Contamination | Justification |
|---|---|---|---|---|---|---|---|---|
| 90MW0091F | 55.08 to 50.08 | SU | Monitoring for contaminants not captured by ETR system. | Yes | No | Yes | No | Global Kriging Weight |
| 90MW0100A | -73.95 to -78.77 | FM | Delineation of the plumelet. | Emergency | Not Considered | No | Yes | Re-evaluate after two rounds |
| 90MW0100B | -18.86 to -23.68 | FM | Delineation of the plumelet. | Emergency | Not Considered | No | Yes | Re-evaluate after two rounds |
| 90MW0101A | -40.48 to -45.29 | FM | Delineation of the plumelet. | Emergency | Not Considered | No | Yes | Re-evaluate after two rounds |
| 90MW0102A | -41.43 to -46.13 | FM | Delineation of the plumelet. | No | Not Considered | No | No | |
| 90MW0103A | -44.05 to -48.85 | FM | Delineation of the plumelet. | Emergency | Not Considered | No | Yes | Re-evaluate after two rounds |
| 90PZ0204 | -5.38 to -10.38 | FM | Delineation of the plumelet. | No | Yes | No | No | |
| 90PZ0205 | 70.92 to 60.92 | FM | Delineation of the plumelet. | No | Yes | No | No | |
| 90PZ1-B1 | -2.44 to -3.36 | FM | Delineation of the plumelet. | Emergency | Not Considered | No | Yes | Re-evaluate after two rounds |
| 90PZ1-B2 | 28.88 to 27.96 | FM | Delineation of the plumelet. | Emergency | Not Considered | No | Yes | Re-evaluate after two rounds |
| 90PZ1-C1 | 53.8 to 48.8 | FM | Monitoring downgradient of treatment system. | Emergency | Not Considered | No | Yes | Re-evaluate after two rounds |
| 90RIW0009 | -0.83 to -40.83 | RIW | Delineation of the plumelet. | Emergency | Yes | No | Yes | Re-evaluate after two rounds |
| 90SNP001 | UN | DP | Delineation of the plumelet. | No | Not Considered | No | Yes | Summer Risk Sampling |
| 90SNP002 | UN | DP | Delineation of the plumelet. | No | Not Considered | No | Yes | Summer Risk Sampling |
| 96MW0012 | UN | UN | Monitoring for contaminants not captured by ETR system. | Yes | Not Considered | No | Yes | Breakthrough Monitoring |

**Table 7-1**
**FS-12 Groundwater Monitoring Network Recommendations for EDB Monitoring**

| Location Identification | Screen Interval (ft msl) | Well Type | Rationale for Location | Sampled for EDB in SPEIM Network? | Important for Spatial Characterization? | Considered in Particle Tracking? | Recommended for Characterization of EDB Contamination | Justification |
|---|---|---|---|---|---|---|---|---|
| 96SV0004 | 89.20 to 59.20 | NA | Source area monitoring of FS-12. | Yes | Yes | No | Yes | |
| 96SV0006 | 84.70 to 54.70 | NA | Source area monitoring of FS-12. | Yes | Yes | No | Yes | |
| 96SV0013 | 86.9 to 56.9 | NA | Source area monitoring of FS-12. | Yes | Yes | No | Yes | |
| ECMWSNP01 | 73.84 to 68.84 | SU | Monitoring crossgradient of treatment system. | No | No | No | No | |
| ECMWSNP02D | -9.54 to -14.54 | Microwell | Monitor water quality entering Snake Pond downgradient of ETR (study area). | Yes | Not Considered | Yes | Yes | |
| ECMWSNP02S | 25.36 to 20.36 | Microwell | Monitor water quality entering Snake Pond downgradient of ETR (study area). | Yes | Not Considered | Yes | Yes | |
| ECMWSNP03D | -9.54 to -14.54 | Microwell | Monitor water quality entering Snake Pond downgradient of ETR (study area). | Yes | Yes | No | Yes | |
| ECMWSNP03S | 30.36 to 25.36 | Microwell | Monitor water quality entering Snake Pond downgradient of ETR (study area). | Yes | No | No | No | Global Kriging Weight |

EDB = ethylene dibromide
ETR = extraction, treatment, reinjection
FS-12 = Fuel Spill-12
ft = feet
JBT = J. Braden Thompson
msl = mean sea level
NA = not applicable
UN = unknown

Well Type
DP = drivepoint
EW = extraction well
FM = flush-mount
MP = multi-point well
P = peristaltic pump
PZ = piezometer
RIW = reinjection well
SD = small diameter pump
SG = staff gauge
SU = stick-up
UN = unknown

# Table 7-2
## Proposed Regional Hydraulic Monitoring Well Network

| Location Identification | Northing (ft) | Easting (ft) | Surface Elevation (ft msl) | Top of Casing Elevation (ft msl) | Top of Screen Elevation (ft msl) | Bottom of Screen Elevation (ft msl) | Screen Length (ft) |
|---|---|---|---|---|---|---|---|
| 00MP0571E | 233205.00 | 869979.00 | 38.10 | 41.50 | 19.10 | 16.60 | 2.50 |
| 00MW0511D | 234660.40 | 866836.00 | 94.70 | 97.37 | 19.70 | 14.70 | 5.00 |
| 00MW0514D | 235361.40 | 863739.00 | 80.00 | 83.69 | 25.00 | 20.00 | 5.00 |
| 00MW0515C | 235409.00 | 868766.00 | 72.50 | 75.51 | 12.50 | 7.50 | 5.00 |
| 00MW0516C | 238540.20 | 871512.00 | 86.10 | 89.13 | 6.10 | 1.10 | 5.00 |
| 00MW0517A | 236665.10 | 870499.00 | 94.00 | 96.93 | -26.00 | -31.00 | 5.00 |
| 00MW0517E | 236665.50 | 870499.00 | 94.00 | 96.45 | 51.00 | 46.00 | 5.00 |
| 00MW0521C | 231896.00 | 865743.02 | 61.20 | 62.97 | 44.20 | 34.20 | 10.00 |
| 00MW0523B | 233855.00 | 866253.00 | 76.90 | 76.68 | 26.90 | 21.90 | 5.00 |
| 00MW0524B | 232678.87 | 866023.50 | 58.99 | 58.31 | -51.01 | -56.01 | 5.00 |
| 00MW0524D | 232694.69 | 865996.43 | 59.56 | 59.29 | -155.34 | -160.34 | 5.00 |
| 00MW0524E | 232694.59 | 865996.43 | 59.56 | 59.27 | 45.86 | 35.86 | 10.00 |
| 00MW0526B | 232511.97 | 866407.60 | 51.37 | 51.11 | -13.63 | -18.63 | 5.00 |
| 00MW0526C | 232496.83 | 866416.07 | 50.75 | 50.29 | 41.75 | 31.75 | 10.00 |
| 00MW0526Z | 232498.49 | 866380.65 | 49.95 | 49.76 | -71.05 | -76.05 | 5.00 |
| 00MW0528B | 234304.11 | 864493.15 | 51.28 | 53.60 | 24.28 | 19.28 | 5.00 |
| 00MW0531 | 237110.00 | 867657.00 | 96.95 | 99.63 | 53.95 | 43.95 | 10.00 |
| 00MW0539A | 233600.30 | 868118.48 | 71.06 | 70.56 | -33.94 | -38.94 | 5.00 |
| 00MW0539C | 233609.41 | 868109.94 | 70.96 | 70.46 | 30.96 | 25.96 | 5.00 |
| 00MW0539E | 233615.64 | 868104.86 | 70.70 | 70.40 | -212.30 | -217.30 | 5.00 |
| 00MW0541A | 232831.96 | 867204.55 | 41.53 | 41.15 | -57.27 | -62.27 | 5.00 |
| 00MW0541D | 232838.48 | 867194.50 | 41.32 | 40.94 | 36.32 | 31.32 | 5.00 |
| 00MW0542A | 234137.00 | 868819.00 | 42.00 | 44.13 | -6.00 | -11.00 | 5.00 |
| 00MW0543 | 233644.23 | 869232.32 | 46.96 | 48.89 | 18.96 | 13.96 | 5.00 |
| 00MW0547A | 233699.03 | 865546.89 | 97.24 | 96.79 | -57.76 | -62.76 | 5.00 |
| 00MW0553A | 232196.00 | 872861.00 | 40.90 | 43.65 | -54.10 | -59.10 | 5.00 |
| 00MW0553D | 232199.00 | 872858.00 | 41.20 | 44.12 | 34.20 | 24.20 | 10.00 |
| 00MW0554B | 232324.00 | 869681.00 | 90.80 | 93.34 | -38.20 | -43.20 | 5.00 |
| 00MW0557 | 231014.00 | 871337.00 | 59.84 | 62.41 | -40.16 | -45.16 | 5.00 |
| 00MW0562A | 233158.65 | 869522.26 | 43.74 | 46.02 | -84.26 | -89.26 | 5.00 |
| 00MW0562C | 233160.02 | 869517.56 | 43.97 | 46.00 | 39.47 | 29.47 | 10.00 |
| 00MW0570B | 234608.00 | 868941.00 | 61.25 | 61.03 | 32.25 | 27.25 | 5.00 |
| 00MW0572 | 232886.70 | 865399.07 | 92.34 | 92.79 | 48.34 | 43.34 | 5.00 |
| 00MW0573A | 233638.26 | 869992.19 | 36.21 | 36.15 | -116.79 | -121.79 | 5.00 |
| 00MW0573D | 233651.36 | 869992.67 | 36.48 | 36.28 | 27.98 | 22.98 | 5.00 |
| 00MW0577A | 233784.22 | 870137.47 | 37.69 | 37.40 | -69.50 | -74.39 | 4.89 |
| 00MW0583A | 229136.92 | 868211.52 | 45.17 | 44.50 | -244.83 | -249.83 | 5.00 |
| 00MW0583B | 229145.95 | 868201.62 | 44.96 | 44.68 | -125.04 | -130.04 | 5.00 |
| 00MW0583D | 229145.85 | 868201.62 | 44.96 | 44.71 | 29.96 | 19.96 | 10.00 |
| 00MW0586A | 232854.36 | 867177.87 | 41.07 | 40.77 | -182.13 | -187.13 | 5.00 |
| 00MW0587B | 228165.85 | 870295.47 | 70.27 | 69.92 | -14.73 | -19.73 | 5.00 |
| 00MW0588B | 226494.13 | 870005.36 | 37.96 | 37.75 | 22.96 | 17.96 | 5.00 |
| 00MW0589A | 229647.64 | 863783.26 | 53.61 | 53.25 | -197.69 | -202.69 | 5.00 |
| 00MW0590A | 229315.37 | 871934.81 | 75.66 | 75.40 | -164.20 | -169.20 | 5.00 |
| 00MW0590B | 229315.27 | 871934.81 | 75.66 | 75.40 | -30.34 | -35.34 | 5.00 |
| 00MW0591A | 225506.45 | 868002.82 | 41.74 | 41.51 | -201.06 | -206.06 | 5.00 |
| 00MW0591C | 225506.35 | 868002.82 | 41.74 | 41.56 | -9.56 | -14.56 | 5.00 |
| 00MW0592A | 226576.18 | 864304.10 | 75.03 | 74.84 | -173.07 | -178.07 | 5.00 |
| 00MW0592B | 226576.08 | 864304.10 | 75.03 | 74.88 | -69.27 | -74.27 | 5.00 |
| 00MW0597A | 232031.18 | 867306.99 | 30.14 | 30.00 | -34.16 | -38.56 | 4.40 |
| 00MW0599 | 231513.08 | 868080.10 | 26.64 | 27.00 | -47.96 | -52.96 | 5.00 |
| 00MW0603 | 232646.99 | 867060.34 | 11.64 | 12.00 | -54.36 | -59.36 | 5.00 |
| 00MW0604A | 232374.87 | 866619.28 | 11.64 | 12.00 | -125.36 | -130.36 | 5.00 |
| 00MW0607A | 230390.79 | 865600.20 | 73.76 | 75.99 | -133.24 | -138.24 | 5.00 |
| 00MW0607B | 230391.17 | 865600.18 | 73.76 | 75.97 | -45.24 | -50.24 | 5.00 |
| 00MW0608A | 230291.24 | 866603.84 | 42.69 | 42.47 | -196.81 | -201.81 | 5.00 |
| 00MW0609A | 232073.59 | 865715.33 | 60.47 | 60.13 | -79.13 | -84.13 | 5.00 |
| 00MW0620A | 231931.45 | 866476.51 | 39.63 | 39.64 | -51.67 | -56.67 | 5.00 |
| 00MW0620C | 231978.42 | 866491.21 | 38.64 | 38.65 | -13.36 | -18.36 | 5.00 |
| 00MW0621A | 232266.02 | 865695.44 | 67.73 | 67.38 | -42.27 | -47.27 | 5.00 |
| 02MW0004 | 243448.00 | 859265.00 | 130.80 | 134.16 | 66.30 | 56.30 | 10.00 |
| 02MW0011 | 242822.00 | 858688.00 | 126.70 | 129.84 | 63.30 | 53.30 | 10.00 |
| 02MW0017 | 232247.90 | 855289.80 | 97.92 | 97.78 | 31.02 | 21.02 | 10.00 |
| 02MW1204B | 238496.01 | 857239.00 | 111.00 | 114.05 | 23.00 | 18.00 | 5.00 |

**Table 7-2**
**Proposed Regional Hydraulic Monitoring Well Network**

| Location Identification | Northing (ft) | Easting (ft) | Surface Elevation (ft msl) | Top of Casing Elevation (ft msl) | Top of Screen Elevation (ft msl) | Bottom of Screen Elevation (ft msl) | Screen Length (ft) |
|---|---|---|---|---|---|---|---|
| 02MW1206B | 232167.70 | 855186.50 | 96.16 | 95.91 | -16.18 | -23.84 | 7.66 |
| 02PZ1283C | 225494.10 | 853297.10 | 36.40 | 38.36 | -58.95 | -61.45 | 2.50 |
| 02WT0121 | 237571.00 | 854429.00 | 104.87 | 106.88 | 52.87 | 42.87 | 10.00 |
| 02WT0122 | 235639.00 | 857817.00 | 102.99 | 106.28 | 50.99 | 40.99 | 10.00 |
| 03AEHA0002 | 248120.00 | 863275.00 | 144.90 | 147.03 | 73.90 | 68.90 | 5.00 |
| 03AEHA0004 | 248567.00 | 861956.00 | 146.60 | 149.87 | 76.60 | 71.60 | 5.00 |
| 03AEHA0005 | 247423.00 | 861451.00 | 143.20 | 145.45 | 73.20 | 68.20 | 5.00 |
| 03MP0090A | 234297.44 | 864478.29 | 49.31 | 52.44 | -161.54 | -164.04 | 2.50 |
| 03MW0006 | 249390.00 | 861330.00 | 149.14 | 152.04 | 68.14 | 58.14 | 10.00 |
| 03MW0024A | 246260.00 | 861970.00 | 140.10 | 142.60 | -1.10 | -6.10 | 5.00 |
| 03MW0034 | 242374.60 | 861408.10 | NA | 129.39 | -29.50 | -34.50 | 5.00 |
| 03MW0035 | 243913.00 | 857576.00 | NA | 125.86 | -11.80 | -16.50 | 4.70 |
| 03MW0039Z | 238502.80 | 857281.70 | 110.20 | 116.60 | -84.80 | -89.80 | 5.00 |
| 03MW0045 | 240292.00 | 860524.00 | 119.73 | 119.73 | -15.27 | -20.27 | 5.00 |
| 03MW0045Z | 240278.20 | 860515.50 | NA | 121.71 | -145.00 | -150.00 | 5.00 |
| 03MW0048 | 242750.00 | 856391.00 | 112.84 | 115.49 | 8.34 | 3.34 | 5.00 |
| 03MW0096 | 238388.00 | 861103.80 | 113.50 | 115.96 | -26.80 | -31.80 | 5.00 |
| 03MW0100A | 239674.59 | 857547.06 | 103.11 | 105.17 | -97.09 | -102.09 | 5.00 |
| 03MW0100B | 239667.90 | 857549.20 | 103.18 | 105.17 | 19.83 | 14.83 | 5.00 |
| 03MW0105A | 235497.35 | 863887.55 | 99.25 | 101.04 | -118.15 | -123.15 | 5.00 |
| 03MW0106A | 242550.49 | 857478.89 | 114.42 | 116.97 | -125.58 | -130.58 | 5.00 |
| 03MW0106B | 242550.29 | 857478.54 | 114.42 | 116.96 | 4.42 | -0.58 | 5.00 |
| 03MW0107A | 244771.68 | 859402.83 | 133.74 | 135.96 | -86.26 | -91.26 | 5.00 |
| 03MW0107B | 244771.89 | 859402.83 | 133.74 | 135.96 | -16.26 | -21.46 | 5.20 |
| 03MW0111A | 239483.45 | 861443.94 | 115.26 | 117.98 | -134.74 | -139.74 | 5.00 |
| 03MW0111B | 239479.97 | 861451.54 | 115.02 | 117.36 | -18.98 | -23.98 | 5.00 |
| 03MW0112B | 243356.87 | 861456.96 | 130.83 | 130.62 | -41.17 | -46.17 | 5.00 |
| 03MW0114A | 236189.78 | 862703.58 | 105.31 | 108.00 | -113.69 | -118.69 | 5.00 |
| 03MW0114B | 236189.44 | 862703.42 | 105.31 | 108.01 | -69.69 | -74.69 | 5.00 |
| 03MW0116A | 239726.25 | 859064.45 | 115.06 | 114.53 | -144.94 | -149.94 | 5.00 |
| 03MW0116B | 239726.49 | 859064.73 | 115.06 | 114.53 | -44.94 | -49.94 | 5.00 |
| 03MW0118A | 238056.66 | 862473.70 | 109.86 | 109.58 | -120.14 | -125.14 | 5.00 |
| 03MW0118B | 238056.42 | 862473.69 | 109.86 | 109.59 | -36.14 | -41.14 | 5.00 |
| 03MW0162 | 249877.00 | 863900.00 | 150.50 | 150.29 | 50.50 | 45.50 | 5.00 |
| 03MW0564D | 226170.00 | 839839.00 | 47.28 | 49.50 | 14.28 | 4.28 | 10.00 |
| 03MW0909 | 250645.00 | 862369.00 | 152.94 | 154.41 | 69.94 | 59.94 | 10.00 |
| 03MW2107B | 239173.72 | 859814.09 | 115.22 | 114.91 | 41.22 | 31.22 | 10.00 |
| 03MW2111A | 241277.25 | 859744.71 | 123.59 | 123.19 | -76.41 | -81.41 | 5.00 |
| 03MW2113A | 239173.83 | 859817.73 | 115.06 | 114.39 | -79.94 | -84.94 | 5.00 |
| 03MW2114B | 242836.75 | 858946.08 | 130.11 | 129.71 | -49.89 | -54.89 | 5.00 |
| 03MW2123A | 240065.81 | 855940.29 | 110.78 | 110.29 | -9.82 | -14.82 | 5.00 |
| 03MW2140A | 237190.07 | 856940.83 | 109.55 | 109.04 | -10.45 | -15.45 | 5.00 |
| 03MW2141A | 235833.32 | 859618.79 | 102.95 | 105.53 | -6.95 | -11.95 | 5.00 |
| 03MW2143A | 238307.82 | 858798.25 | 112.68 | 114.46 | 2.38 | -2.62 | 5.00 |
| 03MW2405A | 236331.47 | 863578.41 | 79.95 | 79.30 | -92.05 | -97.05 | 5.00 |
| 03MW2502A | 236629.81 | 861720.55 | 105.80 | 105.65 | -66.70 | -71.30 | 4.60 |
| 03MW2503A | 243945.74 | 860254.32 | 132.53 | 132.14 | -27.47 | -32.47 | 5.00 |
| 03MW2602A | 241330.18 | 856592.48 | 114.63 | 114.21 | -20.06 | -25.15 | 5.09 |
| 03MW2622A | 228976.11 | 864555.57 | 76.32 | 75.93 | -222.28 | -226.98 | 4.70 |
| 03MW2623A | 228338.66 | 862457.39 | 80.68 | 80.23 | -222.02 | -227.02 | 5.00 |
| 03WT0021 | 247612.00 | 859459.00 | 145.90 | 148.79 | 68.90 | 58.90 | 10.00 |
| 05MW0002 | 238584.00 | 863658.00 | 110.41 | 112.82 | 57.41 | 47.41 | 10.00 |
| 07MW0009 | 242487.00 | 864063.00 | 125.60 | 125.32 | 62.10 | 52.10 | 10.00 |
| 07MW0012 | 243334.00 | 863639.00 | 126.61 | 126.34 | 63.61 | 53.61 | 10.00 |
| 08MW0001 | 241386.00 | 856816.00 | 115.21 | 117.57 | 59.21 | 49.21 | 10.00 |
| 12MW0105B | 244730.01 | 864050.00 | 132.00 | 135.00 | 66.00 | 56.00 | 10.00 |
| 15MW0006 | 262926.00 | 871537.00 | 179.30 | 181.80 | 65.30 | 55.30 | 10.00 |
| 15WT0711 | 261344.74 | 871702.64 | 173.80 | 176.51 | 65.80 | 55.80 | 10.00 |
| 22MW0004 | 237064.00 | 859795.00 | 108.03 | 110.83 | 56.03 | 46.03 | 10.00 |
| 23MW0001 | 246661.00 | 856029.00 | 139.20 | 138.85 | 62.20 | 52.20 | 10.00 |
| 27MW0006 | 247610.00 | 857020.00 | 132.80 | 135.90 | 72.80 | -7.20 | 80.00 |
| 27MW0011D | 246849.05 | 858940.00 | 141.90 | 145.08 | 36.90 | 31.90 | 5.00 |
| 27MW0016B | 245777.01 | 856699.00 | 127.20 | 130.50 | 27.20 | 22.20 | 5.00 |
| 27MW0019 | 245560.00 | 858790.00 | 129.70 | 132.29 | 1.30 | -3.70 | 5.00 |

**Table 7-2**
**Proposed Regional Hydraulic Monitoring Well Network**

| Location Identification | Northing (ft) | Easting (ft) | Surface Elevation (ft msl) | Top of Casing Elevation (ft msl) | Top of Screen Elevation (ft msl) | Bottom of Screen Elevation (ft msl) | Screen Length (ft) |
|---|---|---|---|---|---|---|---|
| 27MW0021B | 245016.01 | 857737.00 | 136.10 | 138.73 | 12.80 | 7.80 | 5.00 |
| 27MW0022A | 242920.00 | 853314.00 | 128.80 | 131.52 | -20.70 | -25.70 | 5.00 |
| 27MW0025A | 240444.00 | 851931.00 | 87.84 | 89.88 | -107.16 | -112.16 | 5.00 |
| 27MW0026A | 241450.00 | 851836.00 | 106.01 | 108.31 | -36.99 | -41.99 | 5.00 |
| 27MW0026B | 241464.00 | 851821.00 | 107.87 | 110.55 | -97.13 | -102.13 | 5.00 |
| 27MW0028B | 240610.01 | 850050.00 | 115.20 | 117.18 | -16.80 | -21.80 | 5.00 |
| 27MW0029 | 240013.00 | 853517.00 | 63.87 | 66.35 | -27.13 | -32.13 | 5.00 |
| 27MW0031A | 243830.01 | 855139.00 | 130.62 | 132.93 | -63.58 | -68.58 | 5.00 |
| 27MW0031C | 243837.00 | 855116.00 | 131.26 | 132.13 | 37.70 | 32.70 | 5.00 |
| 27MW0034 | 246957.00 | 852143.00 | 134.33 | 134.56 | -40.67 | -45.67 | 5.00 |
| 27MW0035 | 243369.00 | 848476.00 | 169.32 | 171.80 | -34.68 | -39.68 | 5.00 |
| 27MW0035Z | 243374.00 | 848501.00 | 169.32 | 171.44 | -125.68 | -130.68 | 5.00 |
| 27MW0038 | 240292.00 | 845537.00 | 74.08 | 76.58 | 30.58 | 20.58 | 10.00 |
| 27MW0038B | 240311.00 | 845552.00 | 72.00 | 73.32 | -96.50 | -101.50 | 5.00 |
| 27MW0039A | 241878.00 | 845550.00 | 97.46 | 97.00 | -42.04 | -47.04 | 5.00 |
| 27MW0039X | 241862.00 | 845561.00 | 97.46 | 97.27 | 32.16 | 22.66 | 9.50 |
| 27MW0040 | 242977.00 | 845919.00 | 101.54 | 103.88 | -56.06 | -61.06 | 5.00 |
| 27MW0041 | 243927.00 | 846120.00 | 108.80 | 111.23 | -69.00 | -74.00 | 5.00 |
| 27MW0043 | 239458.00 | 848290.00 | 173.33 | 174.88 | -24.67 | -29.67 | 5.00 |
| 27MW0044 | 238929.00 | 845050.00 | 85.41 | 88.12 | -100.99 | -105.99 | 5.00 |
| 27MW0046 | 240172.00 | 844368.00 | 96.40 | 99.23 | -47.95 | -52.95 | 5.00 |
| 27MW0046A | 240167.00 | 844355.00 | 96.10 | 98.40 | -102.90 | -107.90 | 5.00 |
| 27MW0050A | 240022.00 | 842452.00 | 31.98 | 31.75 | -75.02 | -80.02 | 5.00 |
| 27MW0050B | 240013.00 | 842444.00 | 31.60 | 31.36 | -137.90 | -142.90 | 5.00 |
| 27MW0050C | 240013.01 | 842444.00 | 31.56 | 31.26 | 12.36 | 2.36 | 10.00 |
| 27MW0051 | 238550.00 | 842179.00 | 45.14 | 47.80 | -97.06 | -102.06 | 5.00 |
| 27MW0056 | 244773.17 | 845084.92 | 63.09 | 62.77 | -126.91 | -131.91 | 5.00 |
| 27MW0059 | 245155.00 | 843491.00 | 67.42 | 68.19 | -133.88 | -138.88 | 5.00 |
| 27MW0060 | 245814.00 | 845472.03 | 58.84 | 58.62 | -138.16 | -143.16 | 5.00 |
| 27MW0061 | 245139.00 | 848050.00 | 165.35 | 167.38 | -43.65 | -48.65 | 5.00 |
| 27MW0061Z | 245125.00 | 848057.00 | 165.38 | 167.49 | -167.79 | -172.79 | 5.00 |
| 27MW0064B | 241429.01 | 841613.00 | 16.03 | 18.89 | -28.97 | -33.97 | 5.00 |
| 27MW0066 | 243652.00 | 842554.00 | 31.76 | 32.55 | -124.24 | -129.24 | 5.00 |
| 27MW0071 | 244617.00 | 840827.00 | 135.27 | 137.26 | 63.27 | 53.27 | 10.00 |
| 27MW0073 | 244703.00 | 849023.00 | NA | NA | -55.84 | -60.84 | 5.00 |
| 27MW0082 | 245209.00 | 839857.00 | 110.30 | 110.00 | -66.70 | -71.70 | 5.00 |
| 27MW0094C | 241597.24 | 848085.91 | 198.46 | 200.60 | 48.96 | 43.96 | 5.00 |
| 27MW0102A | 242200.36 | 849517.48 | 236.81 | 239.29 | -63.19 | -68.19 | 5.00 |
| 27MW0102B | 242200.26 | 849517.27 | 236.81 | 239.28 | 26.81 | 21.81 | 5.00 |
| 27MW0109A | 241021.54 | 842577.15 | 48.40 | 48.06 | -129.60 | -134.60 | 5.00 |
| 27MW0109B | 241021.39 | 842577.62 | 48.40 | 48.11 | -31.60 | -36.60 | 5.00 |
| 27MW0701 | 245120.00 | 854194.00 | 143.52 | 145.74 | 56.93 | 56.93 | 0.00 |
| 27MW0701A | 245119.00 | 854195.00 | 143.48 | 146.39 | -31.52 | -36.52 | 5.00 |
| 27MW0708 | 245112.00 | 851734.00 | 163.50 | 166.48 | 60.40 | 50.40 | 10.00 |
| 27MW2061 | 247734.70 | 856702.50 | 129.55 | 132.27 | 63.55 | 53.55 | 10.00 |
| 27MW2101A | 241562.35 | 848094.86 | 199.19 | 198.99 | -120.81 | -125.81 | 5.00 |
| 27MW2113A | 240590.24 | 848173.60 | 191.71 | 191.45 | 6.71 | 1.71 | 5.00 |
| 27MW2114A | 242401.90 | 847907.27 | 159.42 | 161.17 | 52.92 | 37.92 | 15.00 |
| 27MW2116A | 242469.22 | 848007.86 | 158.96 | 161.08 | -97.34 | -102.34 | 5.00 |
| 27PZ0030A | 241451.48 | 853494.81 | 64.20 | 66.10 | 23.20 | 20.70 | 2.50 |
| 28MW0022 | 237103.00 | 863963.00 | 97.29 | 100.01 | 47.29 | 37.29 | 10.00 |
| 28MW0031D | 230643.70 | 869536.66 | 85.55 | 85.33 | -30.45 | -35.45 | 5.00 |
| 28MW0108 | 241206.00 | 864906.00 | 114.00 | 113.55 | 61.00 | 51.00 | 10.00 |
| 28MW0572 | 232860.53 | 865371.41 | 92.70 | 94.70 | -73.00 | -78.00 | 5.00 |
| 28MW0597A | 237930.70 | 865028.44 | 106.03 | 105.68 | -1.07 | -6.07 | 5.00 |
| 28MW0597C | 237927.52 | 865035.23 | 105.74 | 105.33 | 48.64 | 43.64 | 5.00 |
| 29MW0001 | 237582.00 | 869195.00 | 85.70 | 88.55 | 50.70 | 40.70 | 10.00 |
| 29MW0003A | 236230.02 | 868909.00 | 70.40 | 73.29 | 16.40 | 6.40 | 10.00 |
| 30MW0314 | 234278.00 | 860990.00 | 77.94 | 79.60 | -25.06 | -30.06 | 5.00 |
| 30MW0583A | 231438.00 | 862782.00 | 46.88 | 47.45 | -121.12 | -126.12 | 5.00 |
| 30MW0583E | 231446.00 | 862782.00 | 47.20 | 47.68 | 39.20 | 34.20 | 5.00 |
| 30MW0585A | 229028.00 | 861887.00 | 81.47 | 80.81 | -38.03 | -42.03 | 4.00 |
| 30MW0585D | 229022.00 | 861873.00 | 81.34 | 80.68 | 43.34 | 33.34 | 10.00 |
| 30MW0587A | 232451.03 | 861230.98 | 84.35 | 86.94 | -78.25 | -83.05 | 4.80 |

## Table 7-2
## Proposed Regional Hydraulic Monitoring Well Network

| Location Identification | Northing (ft) | Easting (ft) | Surface Elevation (ft msl) | Top of Casing Elevation (ft msl) | Top of Screen Elevation (ft msl) | Bottom of Screen Elevation (ft msl) | Screen Length (ft) |
|---|---|---|---|---|---|---|---|
| 30MW0587D | 232454.38 | 861234.21 | 84.35 | 86.92 | 49.25 | 39.25 | 10.00 |
| 32MW2001 | 233570.00 | 851739.00 | 90.40 | 92.82 | -124.60 | -129.60 | 5.00 |
| 32PZ2001A | 233556.11 | 851725.09 | 90.40 | 92.84 | 45.40 | 40.40 | 5.00 |
| 32PZ2001B | 233556.11 | 851725.10 | 90.40 | 92.84 | -54.60 | -59.60 | 5.00 |
| 36DP0003 | 234702.10 | 871633.08 | 31.48 | 32.00 | 26.48 | 25.48 | 1.00 |
| 36DP0006 | 234535.00 | 871255.00 | 31.70 | 32.00 | 27.70 | 26.70 | 1.00 |
| 36MW0008 | 241953.00 | 870741.00 | 106.70 | 109.75 | 60.70 | 50.70 | 10.00 |
| 36MW0016 | 235135.00 | 871412.00 | 65.30 | 67.75 | 6.28 | 1.28 | 5.00 |
| 36MW0042 | 242026.00 | 871569.00 | 117.70 | 120.42 | 59.80 | 49.80 | 10.00 |
| 36MW0131A | 234440.00 | 872228.00 | 52.07 | 54.39 | -127.93 | -132.93 | 5.00 |
| 36MW0131C | 234440.01 | 872235.00 | 53.27 | 55.30 | -31.73 | -36.73 | 5.00 |
| 36MW0137 | 235103.00 | 871873.00 | 58.19 | 60.51 | -47.81 | -52.81 | 5.00 |
| 36MW0138 | 233553.00 | 872185.00 | 57.03 | 59.96 | -89.97 | -94.97 | 5.00 |
| 36MW0141 | 235522.10 | 873857.70 | 95.30 | 97.21 | -119.70 | -124.70 | 5.00 |
| 36MW0504 | 236799.15 | 871835.56 | 78.85 | 78.46 | -98.15 | -103.15 | 5.00 |
| 36MW0654 | 240495.00 | 871154.00 | 114.37 | 114.10 | -75.63 | -80.63 | 5.00 |
| 36MW0703 | 242007.00 | 870654.00 | 103.16 | 106.66 | -94.84 | -99.84 | 5.00 |
| 36MW0705 | 242495.00 | 871906.00 | 121.57 | 123.79 | -63.43 | -68.43 | 5.00 |
| 36MW1011A | 233119.52 | 871376.33 | 34.62 | 33.88 | -60.38 | -65.38 | 5.00 |
| 36MW1011B | 233130.98 | 871367.92 | 34.84 | 34.45 | 14.84 | 9.84 | 5.00 |
| 36MW1013A | 234163.98 | 872713.25 | 56.91 | 59.17 | -107.89 | -112.89 | 5.00 |
| 36MW1013C | 234155.06 | 872713.35 | 57.38 | 58.25 | 27.38 | 22.38 | 5.00 |
| 36MW1039C | 236725.68 | 872096.90 | 101.43 | 100.96 | -37.53 | -42.48 | 4.95 |
| 36MW1041A | 235745.02 | 872658.51 | 93.88 | 93.12 | -125.22 | -130.02 | 4.80 |
| 36MW1042B | 239066.98 | 872476.96 | 108.65 | 107.87 | -70.45 | -75.25 | 4.80 |
| 36WT0017 | 240682.00 | 872667.00 | 111.50 | 114.30 | 61.30 | 51.30 | 10.00 |
| 36WT0018 | 240446.00 | 875049.00 | 108.10 | 107.90 | 56.10 | 46.10 | 10.00 |
| 37MW0002 | 236492.00 | 867543.00 | 91.58 | 94.58 | 44.38 | 32.58 | 11.80 |
| 46MW0001 | 243938.00 | 866719.00 | 127.84 | 127.46 | 64.84 | 54.84 | 10.00 |
| 46MW0004 | 243305.00 | 867277.00 | 125.66 | 128.44 | 62.66 | 52.66 | 10.00 |
| 49MW0001 | 242201.00 | 855391.00 | 111.10 | 113.49 | 32.10 | 22.10 | 10.00 |
| 52MW0001 | 241334.00 | 863002.00 | 120.57 | 123.37 | 64.57 | 54.57 | 10.00 |
| 63MW0001 | 234835.74 | 867624.37 | 91.92 | 94.97 | 35.92 | 33.92 | 2.00 |
| 69MW1263 | 231601.00 | 855477.00 | 88.06 | 87.40 | -66.94 | -71.94 | 5.00 |
| 69MW1264 | 231657.00 | 854794.00 | 85.78 | 85.27 | -71.22 | -76.22 | 5.00 |
| 69MW1268 | 233936.90 | 856016.00 | 102.95 | 102.66 | -44.05 | -49.05 | 5.00 |
| 69MW1270 | 232262.60 | 855241.40 | 97.16 | 97.06 | -160.84 | -165.84 | 5.00 |
| 69MW1271 | 230541.00 | 854836.00 | 74.17 | 73.87 | -75.83 | -80.83 | 5.00 |
| 69MW1272 | 230454.00 | 854371.00 | 54.21 | 53.91 | -43.79 | -48.79 | 5.00 |
| 69MW1273 | 229419.00 | 854700.00 | 86.24 | 86.08 | -33.76 | -38.76 | 5.00 |
| 69MW1276 | 226940.00 | 853396.00 | 40.42 | 40.18 | -109.08 | -114.08 | 5.00 |
| 69MW1279A | 226830.00 | 853308.00 | 46.33 | 45.82 | -28.67 | -33.67 | 5.00 |
| 69MW1279C | 226842.00 | 853287.00 | 47.01 | 49.12 | -102.99 | -107.99 | 5.00 |
| 69MW1283B | 225494.10 | 853297.10 | 36.40 | 38.46 | -183.60 | -188.60 | 5.00 |
| 69MW1288 | 222952.00 | 853646.90 | 30.00 | 29.65 | -140.00 | -145.00 | 5.00 |
| 69MW1301 | 221510.00 | 853811.70 | 24.90 | 24.49 | -115.10 | -120.10 | 5.00 |
| 69MW1303B | 224123.20 | 853283.60 | 31.40 | 30.94 | -211.60 | -218.30 | 6.70 |
| 69MW1304 | 224480.20 | 853179.00 | 34.50 | 36.84 | -178.50 | -183.50 | 5.00 |
| 69MW1305 | 224160.00 | 854081.30 | 44.20 | 43.86 | -160.80 | -165.80 | 5.00 |
| 69MW1306A | 221775.20 | 853147.90 | 25.70 | 25.36 | -79.30 | -84.30 | 5.00 |
| 69MW1307 | 223251.60 | 852840.70 | 56.30 | 55.85 | -128.70 | -133.70 | 5.00 |
| 69MW1308 | 221764.80 | 853376.20 | 27.10 | 26.72 | -88.40 | -93.40 | 5.00 |
| 69MW1311 | 224306.80 | 852780.50 | 61.00 | 60.97 | -169.00 | -174.00 | 5.00 |
| 69MW1313 | 225810.00 | 854197.10 | 70.91 | 70.58 | -144.09 | -149.09 | 5.00 |
| 69MW1316 | 225045.00 | 852541.00 | 51.95 | 51.61 | -188.05 | -193.05 | 5.00 |
| 69MW1403 | 227787.50 | 854325.20 | 62.06 | 61.84 | -152.94 | -157.94 | 5.00 |
| 69MW1404 | 227892.70 | 852634.70 | 67.65 | 67.16 | -37.35 | -42.35 | 5.00 |
| 69MW1407 | 229861.80 | 853691.80 | 77.53 | 77.29 | -117.47 | -122.47 | 5.00 |
| 69MW1409 | 229128.50 | 853726.60 | 67.75 | 67.49 | -82.25 | -87.25 | 5.00 |
| 69MW1411 | 229667.50 | 855008.60 | 88.58 | 87.97 | -131.42 | -136.42 | 5.00 |
| 69MW1413 | 233659.10 | 855271.80 | 98.34 | 100.90 | -121.66 | -126.66 | 5.00 |
| 69MW1418 | 229973.50 | 856081.80 | 89.13 | 88.69 | -110.87 | -115.87 | 5.00 |
| 69MW1419 | 232355.20 | 853953.80 | 60.11 | 62.88 | -50.09 | -55.09 | 5.00 |
| 69MW1422 | 233106.00 | 853273.00 | 74.19 | 73.78 | -130.81 | -135.81 | 5.00 |

**Table 7-2**
**Proposed Regional Hydraulic Monitoring Well Network**

| Location Identification | Northing (ft) | Easting (ft) | Surface Elevation (ft msl) | Top of Casing Elevation (ft msl) | Top of Screen Elevation (ft msl) | Bottom of Screen Elevation (ft msl) | Screen Length (ft) |
|---|---|---|---|---|---|---|---|
| 69MW1424 | 231176.09 | 852538.96 | 99.35 | 99.00 | -25.45 | -30.45 | 5.00 |
| 69MW1503B | 236782.26 | 855160.21 | 79.50 | 80.74 | -8.50 | -13.50 | 5.00 |
| 69MW1505A | 238247.27 | 850310.72 | 121.31 | 122.95 | -119.69 | -124.39 | 4.70 |
| 69MW1505B | 238247.20 | 850310.88 | 121.31 | 122.95 | 40.31 | 35.61 | 4.70 |
| 69MW1506A | 236737.96 | 851657.04 | 124.36 | 126.68 | -110.44 | -115.44 | 5.00 |
| 69MW1507 | 229258.37 | 851287.66 | 64.83 | 67.27 | -85.07 | -90.07 | 5.00 |
| 69MW1511A | 234433.51 | 857672.87 | 101.61 | 104.41 | -78.39 | -83.39 | 5.00 |
| 69MW1512 | 232833.99 | 856503.95 | 96.08 | 95.86 | -114.42 | -119.42 | 5.00 |
| 69MW1513 | 229137.03 | 852370.89 | 40.46 | 40.01 | -54.34 | -59.34 | 5.00 |
| 69MW1516A | 235193.97 | 851583.26 | 120.25 | 123.39 | -74.75 | -79.75 | 5.00 |
| 69MW1517A | 234125.91 | 853779.62 | 107.20 | 109.13 | -123.00 | -128.00 | 5.00 |
| 69MW1517B | 234132.62 | 853781.74 | 107.22 | 109.28 | -43.28 | -48.28 | 5.00 |
| 69MW1518 | 236072.94 | 853331.43 | 117.60 | 120.43 | -48.10 | -53.10 | 5.00 |
| 69MW1519 | 235940.71 | 850034.92 | 120.16 | 122.73 | -29.84 | -34.84 | 5.00 |
| 69MW1522A | 233624.71 | 850516.16 | 103.01 | 105.52 | -216.79 | -221.79 | 5.00 |
| 69MW1522B | 233624.92 | 850516.44 | 103.01 | 105.48 | -68.99 | -73.99 | 5.00 |
| 69MW1524 | 230437.61 | 849795.61 | 84.70 | 86.84 | -95.30 | -99.90 | 4.60 |
| 69MW1528 | 239214.42 | 854937.07 | 92.04 | 91.58 | -67.96 | -72.96 | 5.00 |
| 69MW1530 | 232679.93 | 858643.60 | 95.53 | 98.32 | -154.97 | -159.97 | 5.00 |
| 69MW1532A | 233794.70 | 847819.78 | 119.23 | 120.71 | -160.57 | -165.77 | 5.20 |
| 69MW1536A | 232333.73 | 848646.26 | 107.64 | 110.33 | -165.86 | -170.86 | 5.00 |
| 69MW1538 | 238668.03 | 852108.79 | 118.25 | 118.04 | -51.25 | -56.25 | 5.00 |
| 69MW1539 | 233208.41 | 845690.44 | 132.03 | 131.71 | -160.47 | -165.47 | 5.00 |
| 69MW1540 | 230450.62 | 847712.75 | 61.16 | 63.84 | -118.84 | -123.84 | 5.00 |
| 69MW1542 | 231631.97 | 845888.82 | 135.31 | 137.17 | -84.69 | -89.69 | 5.00 |
| 69MW1545A | 231362.00 | 844333.90 | 116.00 | 115.64 | -136.00 | -141.00 | 5.00 |
| 69MW1603A | 232536.72 | 843273.41 | 97.25 | 99.86 | -138.33 | -143.33 | 5.00 |
| 69PZ0110 | 224250.75 | 852941.54 | 32.22 | 33.45 | 18.52 | 17.52 | 1.00 |
| 69PZ0113 | 224131.69 | 853159.87 | 28.73 | 30.15 | 15.93 | 14.93 | 1.00 |
| 69PZ1283A | 225499.42 | 853300.63 | 36.50 | 38.19 | 26.50 | 21.50 | 5.00 |
| 69PZ1288A | 222952.00 | 853646.88 | 30.03 | 29.65 | 20.03 | 15.03 | 5.00 |
| 69PZ1292A | 224608.80 | 853055.13 | 42.90 | 45.77 | 27.90 | 22.90 | 5.00 |
| 69PZ1301A | 221510.01 | 853811.69 | 24.93 | 24.21 | 14.93 | 9.93 | 5.00 |
| 69PZ1303C | 224123.20 | 853283.63 | 31.38 | 30.95 | -108.62 | -113.62 | 5.00 |
| 69PZ1305A | 224160.00 | 854081.31 | 44.25 | 43.66 | 24.25 | 19.25 | 5.00 |
| 69PZ1307A | 223251.60 | 852840.69 | 56.26 | 55.65 | 21.26 | 16.26 | 5.00 |
| 69PZ1308A | 221764.08 | 853376.13 | 27.11 | 26.51 | 17.11 | 12.11 | 5.00 |
| 69PZ1313A | 225810.01 | 854197.13 | 70.91 | 70.60 | 0.91 | -4.09 | 5.00 |
| 69PZ1316A | 225201.44 | 852430.67 | 51.95 | 51.74 | 26.95 | 21.95 | 5.00 |
| 69PZ1316B | 225201.44 | 852430.68 | 51.95 | 51.75 | -88.05 | -93.05 | 5.00 |
| 69PZ1402B | 227794.08 | 854334.38 | 62.00 | 61.91 | -13.00 | -18.00 | 5.00 |
| 69PZ1404A | 227892.70 | 852634.69 | 67.65 | 67.15 | 22.65 | 17.65 | 5.00 |
| 69PZ1406B | 229670.20 | 855017.50 | 88.00 | 87.73 | -47.00 | -52.00 | 5.00 |
| 69PZ1407A | 229861.90 | 853691.81 | 77.53 | 77.24 | 37.53 | 32.53 | 5.00 |
| 69PZ1409A | 229073.00 | 853742.76 | 67.75 | 67.51 | 27.75 | 22.75 | 5.00 |
| 69PZ1413A | 233640.06 | 855294.81 | 98.34 | 100.81 | 28.34 | 23.34 | 5.00 |
| 69PZ1418A | 229944.43 | 856073.13 | 89.13 | 88.66 | 29.13 | 24.13 | 5.00 |
| 69PZ1419 | 232296.88 | 854035.29 | 60.11 | 62.55 | 35.01 | 30.01 | 5.00 |
| 69PZ1423A | 235207.15 | 855907.96 | 102.43 | 102.20 | 42.43 | 37.43 | 5.00 |
| 69PZ1424 | 231176.08 | 852538.96 | 99.35 | 98.94 | 39.35 | 34.35 | 5.00 |
| 69PZ1506 | 236728.60 | 851661.48 | 124.50 | 126.44 | 47.90 | 42.90 | 5.00 |
| 69PZ1511 | 234438.21 | 857678.27 | 101.81 | 104.80 | 46.81 | 41.81 | 5.00 |
| 69PZ1513 | 229137.16 | 852370.71 | 40.46 | 39.86 | 35.96 | 30.96 | 5.00 |
| 69PZ1516 | 235200.72 | 851583.48 | 120.49 | 123.13 | 40.49 | 35.49 | 5.00 |
| 69PZ1518 | 236072.64 | 853331.73 | 117.60 | 120.42 | 42.80 | 37.80 | 5.00 |
| 69PZ1522 | 233624.79 | 850516.67 | 103.01 | 105.52 | 38.01 | 33.01 | 5.00 |
| 69PZ1523 | 234785.10 | 854906.60 | 69.22 | 71.32 | 4.22 | -0.78 | 5.00 |
| 69PZ1524 | 230437.62 | 849795.46 | 84.70 | 87.04 | 36.80 | 31.80 | 5.00 |
| 69PZ1528 | 239214.53 | 854936.89 | 92.04 | 91.49 | 52.04 | 47.04 | 5.00 |
| 69PZ1530 | 232679.93 | 858643.72 | 95.53 | 98.36 | 50.53 | 45.53 | 5.00 |
| 69PZ1532 | 233794.04 | 847820.03 | 119.23 | 120.49 | 34.23 | 29.23 | 5.00 |
| 69PZ1536 | 232333.55 | 848646.49 | 107.64 | 110.31 | 45.64 | 40.64 | 5.00 |
| 69PZ1538 | 238667.59 | 852108.88 | 118.25 | 117.97 | 52.65 | 47.65 | 5.00 |
| 69PZ1539 | 233208.29 | 845690.62 | 132.03 | 131.84 | 34.13 | 28.33 | 5.80 |

# Table 7-2
## Proposed Regional Hydraulic Monitoring Well Network

| Location Identification | Northing (ft) | Easting (ft) | Surface Elevation (ft msl) | Top of Casing Elevation (ft msl) | Top of Screen Elevation (ft msl) | Bottom of Screen Elevation (ft msl) | Screen Length (ft) |
|---|---|---|---|---|---|---|---|
| 69PZ1545 | 231362.10 | 844334.10 | 116.00 | 115.42 | 31.00 | 26.00 | 5.00 |
| 69PZ1603 | 232537.02 | 843273.33 | 97.25 | 99.80 | 23.36 | 18.36 | 5.00 |
| 71MW0038D | 261590.12 | 860609.33 | 187.25 | 186.69 | -54.75 | -64.75 | 10.00 |
| 71MW0038M3 | 261589.26 | 860599.36 | 187.12 | 186.62 | 17.12 | 7.12 | 10.00 |
| 90MP0059A | 252243.40 | 867512.41 | 75.90 | 78.15 | -69.99 | -72.49 | 2.50 |
| 90MP0059E | 252243.40 | 867512.45 | 75.90 | 78.14 | 33.01 | 30.51 | 2.50 |
| 90MP0060F | 251174.62 | 868100.41 | 83.27 | 83.09 | 36.25 | 33.75 | 2.50 |
| 90MW0001 | 253687.00 | 868194.00 | 157.70 | 159.76 | 25.70 | 20.70 | 5.00 |
| 90MW0020 | 251880.00 | 869057.00 | 140.00 | 139.56 | -8.50 | -13.50 | 5.00 |
| 90MW0022 | 254101.00 | 867113.00 | 105.10 | 108.07 | -6.90 | -11.90 | 5.00 |
| 90MW0029B | 255042.00 | 867937.00 | 150.20 | 152.76 | -71.80 | -82.10 | 10.30 |
| 90MW0033 | 252110.00 | 869914.00 | 152.10 | 154.34 | -2.63 | -7.59 | 4.96 |
| 90MW0036 | 253790.00 | 869121.00 | 124.00 | 126.31 | 19.35 | 14.49 | 4.86 |
| 90MW0049 | 251365.40 | 868008.05 | 81.08 | 80.74 | -93.08 | -98.14 | 5.06 |
| 90MW0052 | 253503.00 | 869768.00 | 129.80 | 132.50 | 34.87 | 30.01 | 4.86 |
| 90MW0054 | 252663.49 | 866999.85 | 83.76 | 83.42 | -23.24 | -28.24 | 5.00 |
| 90MW0089A | 250398.20 | 870330.20 | 139.57 | 139.16 | -81.23 | -86.23 | 5.00 |
| 90MW0089D | 250398.90 | 870338.70 | 139.93 | 139.62 | -5.07 | -10.07 | 5.00 |
| 90MW0089F | 250400.30 | 870345.60 | 140.08 | 139.72 | 60.08 | 55.08 | 5.00 |
| 90MW0091E | 249979.60 | 869196.90 | 120.08 | 119.55 | 20.08 | 15.08 | 5.00 |
| 90WT0002 | 254876.00 | 869383.00 | 154.90 | 157.76 | 71.90 | 61.90 | 10.00 |
| 90WT0007 | 258882.00 | 871961.00 | 169.60 | 172.34 | 69.10 | 59.10 | 10.00 |
| 90WT0008 | 251156.00 | 866137.24 | 126.60 | 127.76 | 69.60 | 59.30 | 10.30 |
| 90WT0009 | 255632.00 | 870977.00 | 156.70 | 159.44 | 69.70 | 59.40 | 10.30 |
| 90WT0010 | 252058.48 | 871435.09 | 152.40 | 151.97 | 69.05 | 58.75 | 10.30 |
| 90WT0014 | 255224.67 | 873906.40 | 154.70 | 153.99 | 68.70 | 58.70 | 10.00 |
| 91MW0315A | 235216.88 | 865468.88 | 73.54 | 76.71 | -43.46 | -53.46 | 10.00 |
| 91MW0315B | 235222.62 | 865470.54 | 73.62 | 76.67 | 32.62 | 22.62 | 10.00 |
| 92MW0001 | 244254.00 | 867719.00 | 113.90 | 116.58 | 51.80 | 41.80 | 10.00 |
| 94MW0001 | 237279.00 | 867064.00 | 108.40 | 111.40 | 51.40 | 41.40 | 10.00 |
| 95MW0101 | 220005.12 | 855333.59 | 55.29 | 54.89 | -47.71 | -52.71 | 5.00 |
| 95MW0102B | 217883.63 | 855745.09 | 51.35 | 51.02 | -21.65 | -26.65 | 5.00 |
| 95MW0104 | 214900.71 | 857984.14 | 44.94 | 44.38 | -56.56 | -61.56 | 5.00 |
| 95MW0105 | 220396.19 | 860885.38 | 35.02 | 34.73 | -60.22 | -64.78 | 4.56 |
| 95MW0106 | 213836.26 | 858090.16 | 41.88 | 41.51 | -58.82 | -63.82 | 5.00 |
| 95MW0207A | 227711.26 | 860403.64 | 48.60 | 48.07 | -131.40 | -136.40 | 5.00 |
| 95MW0207B | 227711.31 | 860404.02 | 48.60 | 48.12 | -21.40 | -26.40 | 5.00 |
| 95MW0209B | 229554.35 | 859837.98 | 80.87 | 80.69 | -9.13 | -14.13 | 5.00 |
| 95MW0212B | 226874.74 | 861789.79 | 77.38 | 77.06 | -42.62 | -47.62 | 5.00 |
| 95MW0606A | 219207.30 | 858880.70 | 57.14 | 56.86 | -15.36 | -20.36 | 5.00 |
| 95MW0609H | 219201.00 | 858793.00 | 55.97 | 57.68 | -69.43 | -74.43 | 5.00 |
| 95MW1170A | 230030.40 | 861848.69 | 85.74 | 83.94 | -118.26 | -123.26 | 5.00 |
| 95MW1173B | 222971.57 | 859755.33 | 66.42 | 66.23 | -35.88 | -45.88 | 10.00 |
| 95MW1223C | 234202.36 | 863681.13 | 40.80 | 46.80 | 30.80 | 25.80 | 5.00 |
| 95MW1225D | 230728.56 | 865102.29 | 41.10 | 47.10 | 26.10 | 21.10 | 5.00 |
| 95MW1231A | 223211.03 | 861675.57 | 43.04 | 42.68 | 28.04 | 23.04 | 5.00 |
| 99MW0001 | 238881.00 | 868025.00 | 106.80 | 110.16 | 55.80 | 45.80 | 10.00 |
| BHW-198/USGS | 253224.55 | 844757.02 | NA | NA | NA | NA | NA |
| BHW-212/USGS | 265134.35 | 851002.21 | NA | NA | NA | NA | NA |
| ECMWAMP02D | 233373.00 | 863459.01 | 45.00 | 45.50 | -67.40 | -72.40 | 5.00 |
| ECMWAMP02S | 233373.00 | 863459.00 | 45.00 | 45.50 | -0.40 | -5.40 | 5.00 |
| ECMWAMP07A | 234124.44 | 863613.67 | 46.40 | 48.40 | -55.10 | -60.10 | 5.00 |
| ECMWBKR01S | 217233.22 | 856680.15 | 17.81 | 17.49 | 15.21 | 10.21 | 5.00 |
| ECMWJNP02S | 232305.60 | 866646.98 | 38.00 | 38.50 | 18.00 | 13.00 | 5.00 |
| ECMWLGP01D | 244773.00 | 845084.00 | 63.09 | 63.00 | -26.71 | -31.71 | 5.00 |
| ECMWLGP01S | 244773.35 | 845084.92 | 63.09 | 63.00 | 28.30 | 23.39 | 4.91 |
| ECMWPTP01S | 253215.21 | 874541.07 | 72.11 | 74.59 | 67.11 | 62.11 | 5.00 |
| ECMWRBP01D | 248691.69 | 844066.86 | 25.78 | 25.75 | -58.92 | -63.92 | 5.00 |
| ECMWRBP01S | 248691.59 | 844066.86 | 25.78 | 25.45 | 21.00 | 11.08 | 9.92 |
| ECMWSNP01 | 251423.75 | 866889.72 | 93.64 | 95.74 | 73.84 | 68.84 | 5.00 |
| ECMWTRP01D | 255276.38 | 884302.59 | 97.03 | 98.04 | 11.93 | 6.93 | 5.00 |
| ECMWTRP02 | 255740.18 | 884673.42 | 92.20 | 94.71 | 66.80 | 61.80 | 5.00 |
| ECMWWAP01D | 249565.76 | 875490.08 | 121.68 | 121.67 | 36.68 | 31.68 | 5.00 |
| ECMWWAP02S | 245808.82 | 873923.91 | 74.47 | 76.54 | 60.97 | 51.27 | 9.70 |

**Table 7-2**
**Proposed Regional Hydraulic Monitoring Well Network**

| Location Identification | Northing (ft) | Easting (ft) | Surface Elevation (ft msl) | Top of Casing Elevation (ft msl) | Top of Screen Elevation (ft msl) | Bottom of Screen Elevation (ft msl) | Screen Length (ft) |
|---|---|---|---|---|---|---|---|
| ECMWWAP03 | 250744.89 | 875121.33 | 136.61 | 136.00 | 66.51 | 61.51 | 5.00 |
| ECMWWAP05 | 246028.64 | 871233.53 | 119.76 | 122.02 | 68.46 | 63.46 | 5.00 |
| ECPZCFP01 | 244037.03 | 844095.88 | 27.87 | 28.44 | 25.47 | 21.47 | 4.00 |
| ECPZLJP02 | 228447.76 | 858873.69 | 40.34 | 43.47 | 34.34 | 32.34 | 2.00 |
| ECPZPLW02 | 231081.78 | 857881.06 | 47.07 | 49.98 | 43.07 | 42.07 | 1.00 |
| ECPZSNP10A | 249864.00 | 866552.99 | 70.48 | 72.15 | 8.48 | 3.48 | 5.00 |
| ECPZSNP11B | 248854.45 | 867615.41 | 71.49 | 72.95 | 56.49 | 51.49 | 5.00 |
| ECPZSPW01 | 239057.18 | 846464.62 | 40.29 | 41.39 | 37.79 | 33.79 | 4.00 |
| ECPZVP301 | 226198.04 | 866209.61 | 37.79 | 41.03 | 33.89 | 29.89 | 4.00 |
| ECPZVP801 | 223787.20 | 857376.90 | 30.79 | 31.90 | 27.14 | 22.89 | 4.25 |
| ECPZVP802 | 223684.40 | 857315.67 | 30.87 | 33.08 | 26.27 | 21.97 | 4.30 |
| ECPZWK01 | 249412.43 | 865808.15 | 84.48 | 85.85 | 59.48 | 54.48 | 5.00 |
| ECPZWK02 | 248179.38 | 866674.15 | 92.35 | 93.64 | 67.35 | 62.35 | 5.00 |
| ECPZWSB02 | 236399.41 | 877960.25 | 46.63 | 49.81 | 40.83 | 38.83 | 2.00 |
| FSW-185-0057/USGS | 218411.94 | 864120.21 | NA | NA | NA | NA | NA |
| FSW-235-094/USGS | 234252.05 | 859460.51 | 99.41 | 100.61 | 8.91 | 5.91 | 3.00 |
| FSW-299-0020/USGS | 227137.71 | 856881.02 | NA | NA | NA | NA | NA |
| FSW-302-020/USGS | 224285.40 | 855241.08 | 40.72 | 42.02 | 22.02 | 20.52 | 2.50 |
| FSW-318/USGS | 225268.13 | 842999.64 | NA | NA | NA | NA | NA |
| FSW-320/USGS | 217895.41 | 844596.26 | NA | NA | NA | NA | NA |
| FSW-323/USGS | 215727.27 | 840515.12 | NA | NA | NA | NA | NA |
| FSW-481-044/USGS | 220481.30 | 849811.94 | 54.50 | 56.00 | 12.50 | 10.50 | 2.00 |
| FSW-482-0029/USGS | 213183.37 | 848902.01 | 28.79 | 30.79 | 1.79 | - 0.21 | NA |
| FSW-483-0013/USGS | 217586.27 | 853566.56 | 21.13 | 22.81 | 10.71 | 8.71 | 2.00 |
| FSW-489-043/USGS | 222672.34 | 864907.72 | NA | NA | NA | NA | NA |
| FSW-492-007/USGS | 212283.77 | 859248.92 | 7.69 | 9.19 | 2.30 | 0.30 | 2.00 |
| FSW-494-012/USGS | 212733.72 | 863272.38 | NA | NA | NA | NA | NA |
| FSW-499-018/USGS | 215803.72 | 866201.71 | NA | NA | NA | NA | NA |
| H1GB0007 | 234866.00 | 846971.00 | 113.06 | 115.59 | -153.94 | -158.94 | 5.00 |
| H2WT0028 | 230421.00 | 842362.00 | 58.60 | 60.90 | 9.20 | -0.80 | 10.00 |
| H3WT0020 | 228928.00 | 869804.00 | 79.80 | 81.24 | 43.00 | 26.80 | 16.20 |
| LRMW3001 | 270452.94 | 873264.29 | 72.46 | 72.14 | -22.54 | -32.54 | 10.00 |
| MIW-101/USGS | 229261.02 | 882910.39 | NA | NA | NA | NA | NA |
| MIW-120/USGS | 225248.05 | 877489.28 | NA | NA | NA | NA | NA |
| MIW-152-0043/USGS | 235108.87 | 877034.23 | NA | NA | NA | NA | NA |
| MIW-19-0046/USGS | 236316.29 | 844403.15 | NA | NA | NA | NA | NA |
| MIW-29/USGS | 216735.41 | 876678.59 | NA | NA | NA | NA | NA |
| MIW-76/USGS | 230677.98 | 882893.20 | NA | NA | NA | NA | NA |
| MW-102S | 272011.88 | 874627.06 | 41.47 | NA | NA | NA | NA |
| MW-151/CS-10 | 249542.25 | 862626.50 | NA | NA | NA | NA | NA |
| MW-191/CS-10 | 249184.75 | 863521.25 | NA | NA | NA | NA | NA |
| MW-3/FS-9 | 240881.50 | 857942.70 | NA | NA | NA | NA | NA |
| MW-47/CS-10 | 241837.90 | 858498.70 | NA | NA | NA | NA | NA |
| MW-4A/FS-3 | 235760.50 | 866018.20 | NA | NA | NA | NA | NA |
| NIW-113/USGS | 220527.86 | 872074.56 | NA | NA | NA | NA | NA |
| OGDEN/MW-11S | 264695.50 | 867840.40 | 194.31 | 194.16 | 72.31 | 62.31 | 10.00 |
| OGDEN/MW-12S | 259817.50 | 868586.10 | 171.69 | 171.74 | 74.99 | 64.99 | 10.00 |
| OGDEN/MW-55S | 267907.66 | 869395.19 | 197.25 | 197.25 | 64.25 | 54.25 | 10.00 |
| SDW-260/USGS | 269947.61 | 884765.86 | NA | NA | NA | NA | NA |
| SDW-261-0160/USGS | 266526.00 | 875633.00 | 59.52 | NA | NA | NA | NA |
| SDW-263-0111/USGS | 275842.20 | 868675.00 | 36.35 | NA | NA | NA | NA |
| SDW-318-38/USGS | 277154.21 | 866866.18 | NA | NA | NA | NA | NA |
| SDW-444-0097/USGS | 254705.28 | 877518.19 | NA | NA | NA | NA | NA |
| SM-4 | 260572.70 | 875074.80 | 66.28 | NA | NA | NA | NA |
| SM-5 | 273317.78 | 869850.19 | 40.81 | NA | NA | NA | NA |
| USFW173069 | 223207.00 | 858443.00 | 35.95 | 37.45 | -28.05 | -33.05 | 5.00 |
| USFW181 | 209025.00 | 848186.00 | 29.25 | 29.51 | -17.85 | -19.35 | 1.50 |
| USFW182069 | 222397.00 | 858452.00 | 31.92 | 32.92 | -32.48 | -37.48 | 5.00 |
| USFW237088 | 231731.00 | 860323.00 | 90.46 | 92.26 | 5.46 | 2.46 | 3.00 |
| USFW242077 | 229278.00 | 857010.00 | 61.20 | 62.70 | -12.70 | -15.70 | 3.00 |
| USFW254026 | 231239.00 | 861620.00 | 56.05 | 57.05 | 32.95 | 29.95 | 3.00 |
| USFW254107 | 231239.03 | 861620.02 | 56.05 | 57.06 | -47.65 | -50.65 | 3.00 |
| USFW254216 | 231239.06 | 861620.05 | 56.05 | 57.08 | -157.45 | -160.45 | 3.00 |
| USFW279086 | 228212.00 | 862490.00 | 80.35 | 81.40 | -3.05 | -6.05 | 3.00 |

**Table 7-2**
**Proposed Regional Hydraulic Monitoring Well Network**

| Location Identification | Northing (ft) | Easting (ft) | Surface Elevation (ft msl) | Top of Casing Elevation (ft msl) | Top of Screen Elevation (ft msl) | Bottom of Screen Elevation (ft msl) | Screen Length (ft) |
|---|---|---|---|---|---|---|---|
| USFW288080 | 227258.02 | 858626.00 | 59.83 | 60.55 | -18.77 | -20.57 | 1.80 |
| USFW294109 | 223701.00 | 857374.00 | 36.57 | 38.07 | -70.73 | -72.73 | 2.00 |
| USFW347P01030 | 233367.00 | 861824.00 | 59.70 | 60.40 | 35.30 | 29.50 | 5.80 |
| USFW348021 | 230138.00 | 862696.00 | 50.54 | 51.24 | 32.04 | 30.04 | 2.00 |
| USFW348148 | 230134.10 | 862693.00 | 48.34 | 47.75 | -94.66 | -99.66 | 5.00 |
| USFW350013 | 224735.00 | 859338.00 | 37.85 | 38.75 | 27.15 | 25.15 | 2.00 |
| USFW350140 | 224735.02 | 859338.00 | 38.27 | 39.77 | -98.73 | -100.73 | 2.00 |
| USFW369055 | 226563.00 | 859849.00 | 48.78 | 48.88 | -4.42 | -6.42 | 2.00 |
| USFW373060 | 226461.04 | 859775.00 | 48.91 | 48.91 | -2.19 | -11.19 | 9.00 |
| USFW375015 | 220571.68 | 857439.51 | 29.41 | 30.15 | 16.81 | 14.81 | 2.00 |
| USFW375119 | 220561.21 | 857453.28 | 29.48 | 30.85 | -87.52 | -89.52 | 2.00 |
| USFW411036 | 229205.30 | 860807.00 | 52.56 | 53.26 | 18.96 | 16.96 | 2.00 |
| USFW411122 | 229205.03 | 860807.00 | 52.60 | 53.61 | -67.60 | -69.60 | 2.00 |
| USFW418089 | 226231.01 | 857346.00 | 73.64 | 74.64 | -12.96 | -14.96 | 2.00 |
| USFW429012 | 222487.03 | 857924.00 | 32.14 | 33.64 | 21.94 | 19.94 | 2.00 |
| USFW431078 | 222789.01 | 857308.00 | 35.45 | 36.95 | -40.35 | -42.35 | 2.00 |
| USFW433064 | 221611.84 | 856790.20 | 59.40 | 60.74 | -2.80 | -4.80 | 2.00 |
| USFW433140 | 221615.24 | 856791.47 | 59.48 | 60.84 | -78.52 | -80.52 | 2.00 |
| USFW436036 | 219490.12 | 856881.99 | 24.40 | 25.78 | -9.30 | -11.30 | 2.00 |
| USFW436141 | 219486.91 | 856879.62 | 24.54 | 25.87 | -114.14 | -116.14 | 2.00 |
| USFW459091 | 222262.00 | 855415.00 | 61.14 | 62.14 | -27.86 | -29.86 | 2.00 |
| USFW470091 | 219065.15 | 859335.31 | 57.78 | 58.91 | -30.42 | -32.42 | 2.00 |
| USFW482029 | 213228.00 | 853789.00 | 28.79 | 30.79 | 1.79 | -0.21 | 2.00 |
| USFW483028 | 217586.04 | 854566.00 | 20.94 | 22.94 | -5.56 | -7.56 | 2.00 |
| USFW483079 | 217586.03 | 854566.00 | 20.91 | 22.91 | -55.59 | -57.59 | 2.00 |
| USFW484007 | 214476.03 | 856108.00 | 12.69 | 14.19 | 7.29 | 5.29 | 2.00 |
| USFW484108 | 214476.00 | 856108.00 | 11.85 | 14.85 | -94.05 | -96.05 | 2.00 |
| USFW485013 | 213539.03 | 853762.00 | 14.39 | 16.39 | 3.59 | 1.59 | 2.00 |
| USFW485113 | 213539.04 | 853762.00 | 13.77 | 15.77 | -97.73 | -99.73 | 2.00 |
| USFW487023 | 216291.03 | 855480.00 | 20.20 | 21.94 | -1.30 | -3.30 | 2.00 |
| USFW490014 | 215470.03 | 854501.00 | 21.09 | 22.59 | 9.09 | 7.09 | 2.00 |
| USFW490113 | 215470.04 | 854501.00 | 20.33 | 22.33 | -91.17 | -93.17 | 2.00 |
| USFW493008 | 214820.01 | 859828.00 | 16.11 | 18.11 | 9.71 | 7.71 | 2.00 |
| USFW493115 | 214820.02 | 859828.00 | 15.72 | 17.72 | -98.28 | -100.28 | 2.00 |
| USFW501087 | 217595.03 | 858160.00 | 52.10 | 51.88 | -32.40 | -34.40 | 2.00 |
| USFW502087 | 220250.99 | 858203.08 | 59.77 | 60.94 | -25.13 | -27.13 | 2.00 |
| USSD313038 | 234042.53 | 862528.71 | 55.50 | 56.54 | 19.40 | 17.40 | 2.00 |
| WL01D | 260322.50 | 862619.19 | 187.03 | 186.72 | -102.97 | -112.97 | 10.00 |
| WL01M1 | 260322.50 | 862619.20 | 186.61 | 186.73 | -33.39 | -38.39 | 5.00 |
| WL01S | 260322.50 | 862619.22 | 187.03 | 186.75 | 73.03 | 63.03 | 10.00 |
| WL03D | 264682.75 | 862471.56 | 114.25 | 113.77 | -147.75 | -152.75 | 5.00 |
| WL03S | 264682.75 | 862471.59 | 114.25 | 113.91 | 70.25 | 60.25 | 10.00 |
| WL04 | 264941.88 | 864591.00 | 208.28 | 208.00 | 71.28 | 61.28 | 10.00 |
| WL05D | 263344.03 | 867576.50 | 184.00 | 183.83 | -151.00 | -156.00 | 5.00 |
| WL05S | 263344.03 | 867576.53 | 184.00 | 183.80 | 65.00 | 55.00 | 10.00 |
| WL06 | 258777.14 | 865873.75 | 182.39 | 181.92 | 76.39 | 66.39 | 10.00 |
| WL102S | 264220.28 | 856385.63 | 203.66 | 203.66 | 58.66 | 48.66 | 10.00 |
| WL105M2 | 261782.47 | 862743.88 | 196.73 | 196.73 | 31.73 | 21.73 | 10.00 |
| WL107M1 | 259669.58 | 863659.19 | 189.78 | 189.78 | 34.78 | 24.78 | 10.00 |
| WL10S | 268239.22 | 861336.46 | 207.91 | 210.56 | 62.91 | 52.91 | 10.00 |
| WL13D | 256972.67 | 865939.38 | 147.24 | 146.95 | -72.76 | -77.76 | 5.00 |
| WL13S | 256972.67 | 865939.39 | 147.24 | 147.08 | 74.24 | 64.24 | 10.00 |
| WL14 | 256421.59 | 861487.25 | 171.17 | 173.75 | 75.17 | 65.17 | 10.00 |
| WL16D | 271405.16 | 865220.94 | 186.37 | 189.08 | -168.63 | -173.63 | 5.00 |
| WL16S | 271405.16 | 865220.95 | 186.37 | 189.14 | 61.37 | 51.37 | 10.00 |
| WL22 | 261552.97 | 856136.25 | 236.18 | 238.92 | 65.68 | 55.68 | 10.00 |
| WL24 | 251766.36 | 848951.13 | 55.06 | 57.41 | 49.06 | 39.06 | 10.00 |
| WL28 | 255650.53 | 864039.75 | 169.29 | 169.02 | 74.12 | 64.12 | 10.00 |
| WL29 | 258442.44 | 868127.69 | 174.28 | 174.04 | 75.78 | 65.78 | 10.00 |
| WL30 | 254922.11 | 867314.00 | 99.97 | 99.64 | 73.97 | 63.97 | 10.00 |
| WL41M3 | 265394.75 | 860562.13 | 192.60 | 192.60 | 68.60 | 58.60 | 10.00 |
| WL42M3 | 267655.38 | 854148.13 | 120.24 | 120.24 | -45.56 | -55.56 | 10.00 |
| WL46D | 255850.84 | 856470.88 | 226.06 | 226.12 | -68.94 | -78.94 | 10.00 |
| WL46M3 | 255850.84 | 856470.88 | 226.06 | 226.29 | 44.06 | 34.06 | 10.00 |

**Table 7-2**
**Proposed Regional Hydraulic Monitoring Well Network**

| Location Identification | Northing (ft) | Easting (ft) | Surface Elevation (ft msl) | Top of Casing Elevation (ft msl) | Top of Screen Elevation (ft msl) | Bottom of Screen Elevation (ft msl) | Screen Length (ft) |
|---|---|---|---|---|---|---|---|
| WL50S | 267274.72 | 857845.63 | 177.98 | 177.98 | 63.98 | 53.98 | 10.00 |
| WL53M2 | 270407.72 | 867599.56 | 185.15 | 185.15 | -8.85 | -18.85 | 10.00 |
| WL55D | 267907.66 | 869394.13 | 197.38 | 197.38 | -57.62 | -67.62 | 10.00 |
| WL56M2 | 251139.34 | 864774.63 | 146.87 | 146.87 | 15.87 | 5.87 | 10.00 |
| WL57D | 257894.42 | 873281.88 | 156.89 | 156.89 | -56.11 | -66.11 | 10.00 |
| WL57S | 257894.42 | 873281.88 | 157.12 | 157.12 | 72.12 | 62.12 | 10.00 |
| WL58S | 258038.94 | 866500.38 | 173.64 | 173.64 | 73.64 | 63.64 | 10.00 |
| WL64M1 | 251953.13 | 859705.75 | 159.88 | 159.88 | 30.88 | 20.88 | 10.00 |
| WL66S | 274505.81 | 854404.13 | 153.74 | 153.74 | 27.74 | 17.74 | 10.00 |
| WL67S | 274243.22 | 859450.00 | 200.11 | 200.11 | 39.11 | 29.11 | 10.00 |
| WL68S | 252432.08 | 861693.94 | 157.19 | 157.19 | 73.19 | 63.19 | 10.00 |
| WL71M1 | 259315.39 | 857356.69 | 226.01 | 226.01 | 46.01 | 36.01 | 10.00 |
| WL79S | 254410.45 | 860801.56 | 159.09 | 159.09 | 70.09 | 60.09 | 10.00 |
| WL82D | 257183.00 | 850381.63 | 77.97 | 77.97 | -47.03 | -57.03 | 10.00 |
| WL82M3 | 257183.00 | 850381.63 | 77.97 | 77.97 | 23.97 | 13.97 | 10.00 |
| WL89M3 | 263731.38 | 859276.06 | 207.07 | 207.07 | 33.07 | 23.07 | 10.00 |
| WS-1DS | 264304.70 | 874659.67 | 62.77 | NA | NA | NA | NA |
| WS-2ES | 268639.18 | 871147.51 | 55.13 | NA | NA | NA | NA |
| WS-3ES | 270167.47 | 869652.30 | 52.16 | NA | NA | NA | NA |
| WS-4ED | 261173.46 | 851168.02 | 49.53 | NA | NA | NA | NA |
| WS-5AS | 250800.48 | 851481.80 | 52.27 | NA | NA | NA | NA |
| WT-7 | 258914.80 | 871995.81 | 68.22 | NA | NA | NA | NA |
| **Stream Gauge and Pond Staff Gauge Locations** | | | | | | | |
| 36SG0001B | 232269.32 | 871951.42 | NA | * | * | * | * |
| 36SG0015A | 233578.77 | 870652.89 | NA | * | * | * | * |
| 36SG0200A | 233463.74 | 871302.13 | NA | * | * | * | * |
| 36SG0201A | 233592.77 | 871284.96 | NA | * | * | * | * |
| 36SG0301A | 234655.00 | 871804.11 | NA | * | * | * | * |
| 36SG0303A | 234106.40 | 871652.20 | NA | * | * | * | * |
| 69SG0006A | 224274.01 | 853020.43 | NA | * | * | * | * |
| 69SG0010A | 223613.35 | 853584.38 | NA | * | * | * | * |
| 69SG0046A | 222277.31 | 853620.22 | NA | * | * | * | * |
| 69SG0049A | 219471.45 | 853889.25 | NA | * | * | * | * |
| 69SG0058A | 225292.61 | 853391.62 | NA | * | * | * | * |
| ECSGAMP03 | 232648.78 | 862230.19 | NA | * | * | * | * |
| ECSGJNP02 | 232396.10 | 866552.26 | NA | * | * | * | * |
| ECSGMAP02 | 239282.29 | 877221.08 | NA | * | * | * | * |
| ECSGMOP02 | 234048.84 | 869633.01 | NA | * | * | * | * |
| ECSGPTP02 | 251390.77 | 876932.44 | NA | * | * | * | * |
| ECSGSNP02 | 249907.12 | 866653.63 | NA | * | * | * | * |
| ECSGWAP02 | 247958.78 | 879669.32 | NA | * | * | * | * |

Data Source: Jacobs Engineering Group Inc., 09 October and 10 November 2000, Site Environmental Evaluation (SEE) database

ft = feet

ft msl = feet mean sea level

NA - not available

* Screen and top of casing data are not applicable for stream gauge and pond staff gauge locations.

**Table 7-3**
**Proposed FS-12 Peripheral Hydraulic Monitoring Well Network**

| Triangular Element | Well Number | Location | Northing (ft) | Easting (ft) | Surface Elevation (ft msl) | TOC Elevation (ft msl) | Top Of Screen Elevation (ft msl) | Bottom Of Screen Elevation (ft msl) | Screen Length (ft) |
|---|---|---|---|---|---|---|---|---|---|
| 601 | 1 | WL06 | 258777.14 | 865873.75 | 182.39 | 181.92 | 76.39 | 66.39 | 10.00 |
| | 2 | WL29 | 258442.44 | 868127.69 | 174.28 | 174.04 | 75.78 | 65.78 | 10.00 |
| | 3 | WL13S | 256972.67 | 865939.39 | 147.24 | 147.08 | 74.24 | 64.24 | 10.00 |
| 602 | 1 | WL57S | 257894.42 | 873281.88 | 157.12 | 157.12 | 72.12 | 62.12 | 10.00 |
| | 2 | 90WT0009 | 255632.00 | 870977.00 | 156.70 | 159.44 | 69.70 | 59.40 | 10.30 |
| | 3 | 90WT0014 | 255224.67 | 873906.40 | 154.70 | 153.99 | 68.70 | 58.70 | 10.00 |
| 603 | 1 | 90MW0021 | 254657.25 | 867576.63 | 120.70 | 123.48 | -6.30 | -11.30 | 5.00 |
| | 2 | 90MW0019 | 253982.32 | 868025.06 | 154.30 | 157.35 | -6.70 | -11.70 | 5.00 |
| | 3 | 90MW0022 | 254101.00 | 867113.00 | 105.10 | 108.07 | -6.90 | -11.90 | 5.00 |
| 604 | 1 | WL45M2 | 254925.36 | 868367.19 | 164.04 | 164.04 | 54.04 | 44.04 | 10.00 |
| | 2 | 90MW0038 | 254294.00 | 867752.00 | 136.90 | 139.01 | 42.15 | 37.28 | 4.87 |
| | 3 | 90MW0039 | 253860.00 | 868615.00 | 130.80 | 133.11 | 47.06 | 42.20 | 4.86 |
| 605 | 1 | 90MW0034 | 253868.00 | 868645.00 | 131.10 | 133.71 | 37.39 | 32.51 | 4.88 |
| | 2 | 90MW0041 | 254309.00 | 868529.00 | 159.60 | 161.63 | 34.23 | 29.37 | 4.86 |
| | 3 | 90MW0037 | 254294.00 | 869143.00 | 157.10 | 156.42 | 47.21 | 42.33 | 4.88 |
| 606 | 1 | 90MW0037 | 254294.00 | 869143.00 | 157.10 | 156.42 | 47.21 | 42.33 | 4.88 |
| | 2 | 90MW0034 | 253868.00 | 868645.00 | 131.10 | 133.71 | 37.39 | 32.51 | 4.88 |
| | 3 | 90MW0052 | 253503.00 | 869768.00 | 129.80 | 132.50 | 34.87 | 30.01 | 4.86 |
| 607 | 1 | 90MW0022 | 254101.00 | 867113.00 | 105.10 | 108.07 | -6.90 | -11.90 | 5.00 |
| | 2 | 90MW0019 | 253982.32 | 868025.06 | 154.30 | 157.35 | -6.70 | -11.70 | 5.00 |
| | 3 | 90MW0070 | 253039.30 | 867726.80 | 125.11 | 124.61 | -7.39 | -12.39 | 5.00 |
| 608 | 1 | 90MW0071 | 253039.30 | 867890.40 | 138.37 | 138.14 | -11.63 | -16.63 | 5.00 |
| | 2 | 90MW0003 | 252805.59 | 868335.35 | 156.90 | 159.16 | 12.90 | 7.90 | 5.00 |
| | 3 | 90MW0080 | 252359.80 | 867908.00 | 119.09 | 118.68 | -19.91 | -24.91 | 5.00 |
| 609 | 1 | 90MW0015 | 251912.87 | 867956.72 | 79.31 | 78.94 | -17.19 | -22.19 | 5.00 |
| | 2 | 90MW0017 | 252288.00 | 868414.00 | 142.20 | 145.12 | -6.80 | -11.80 | 5.00 |
| | 3 | 90MW0080 | 252359.80 | 867908.00 | 119.09 | 118.68 | -19.91 | -24.91 | 5.00 |
| 610 | 1 | 90MW0006 | 252285.21 | 868420.45 | 142.70 | 145.31 | 13.70 | 8.70 | 5.00 |
| | 2 | 90MW0009 | 252314.28 | 868157.37 | 131.40 | 134.11 | 12.40 | 7.40 | 5.00 |
| | 3 | 90MW0011 | 251907.00 | 867958.00 | 79.20 | 78.78 | 32.70 | 27.70 | 5.00 |
| 611 | 1 | 90MW0015 | 251912.87 | 867956.72 | 79.31 | 78.94 | -17.19 | -22.19 | 5.00 |
| | 2 | 90MW0017 | 252288.00 | 868414.00 | 142.20 | 145.12 | -6.80 | -11.80 | 5.00 |
| | 3 | 90MW0027 | 251376.28 | 868480.47 | 136.77 | 136.39 | -26.73 | -31.73 | 5.00 |
| 612 | 1 | 90MW0032 | 252129.62 | 869402.18 | 150.04 | 152.46 | -3.93 | -8.82 | 4.89 |
| | 2 | 90MW0020 | 251880.00 | 869057.00 | 140.00 | 139.56 | -8.50 | -13.50 | 5.00 |
| | 3 | 90MW0024 | 251765.11 | 869268.01 | 140.73 | 143.62 | -10.27 | -15.27 | 5.00 |
| 613 | 1 | 90MW0032 | 252129.62 | 869402.18 | 150.04 | 152.46 | -3.93 | -8.82 | 4.89 |
| | 2 | 90MW0033 | 252110.00 | 869914.00 | 152.10 | 154.34 | -2.63 | -7.59 | 4.96 |
| | 3 | 90MW0024 | 251765.11 | 869268.01 | 140.73 | 143.62 | -10.27 | -15.27 | 5.00 |
| 614 | 1 | 90MW0033 | 252110.00 | 869914.00 | 152.10 | 154.34 | -2.63 | -7.59 | 4.96 |
| | 2 | 90MW0024 | 251765.11 | 869268.01 | 140.73 | 143.62 | -10.27 | -15.27 | 5.00 |
| | 3 | 90MW0086C | 251645.40 | 870185.40 | 153.82 | 155.59 | -0.68 | -5.78 | 5.10 |
| 615 | 1 | 90MW0020 | 251880.00 | 869057.00 | 140.00 | 139.56 | -8.50 | -13.50 | 5.00 |
| | 2 | 90MW0024 | 251765.11 | 869268.01 | 140.73 | 143.62 | -10.27 | -15.27 | 5.00 |
| | 3 | 90MW0026 | 251305.61 | 869111.33 | 138.19 | 137.83 | -8.31 | -13.31 | 5.00 |
| 616 | 1 | 90WT0008 | 251156.00 | 866137.24 | 126.60 | 127.76 | 69.60 | 59.30 | 10.30 |
| | 2 | WL56S | 251139.34 | 864774.63 | 146.89 | 146.89 | 70.89 | 60.89 | 10.00 |
| | 3 | ECPZSNP10B | 249864.24 | 866552.52 | 70.49 | 72.06 | 55.49 | 50.49 | 5.00 |
| 617 | 1 | 90MW0025 | 251335.00 | 868877.00 | 151.00 | 150.58 | -8.50 | -13.50 | 5.00 |
| | 2 | 90MW0050 | 250978.83 | 868343.92 | 83.06 | 82.67 | -2.70 | -7.57 | 4.87 |
| | 3 | 90MW0076 | 250979.70 | 869021.20 | 147.83 | 147.43 | -6.97 | -12.97 | 6.00 |
| 618 | 1 | 90MW0025 | 251335.00 | 868877.00 | 151.00 | 150.58 | -8.50 | -13.50 | 5.00 |
| | 2 | 90MW0076 | 250979.70 | 869021.20 | 147.83 | 147.43 | -6.97 | -12.97 | 6.00 |
| | 3 | 90MW0026 | 251305.61 | 869111.33 | 138.19 | 137.83 | -8.31 | -13.31 | 5.00 |
| 619 | 1 | 90MW0042 | 251163.00 | 870394.00 | 151.3 | 151.11 | 0.93 | -3.95 | 4.88 |
| | 2 | 90MW0065 | 251100.31 | 870708.97 | 150.26 | 150.09 | 20.26 | 15.26 | 5.00 |
| | 3 | 90MW0087B | 250945.80 | 870406.10 | 151.26 | 153.13 | 34.26 | 29.26 | 5.00 |

## Table 7-3
## Proposed FS-12 Peripheral Hydraulic Monitoring Well Network

| Triangular Element | Well Number | Location | Northing (ft) | Easting (ft) | Surface Elevation (ft msl) | TOC Elevation (ft msl) | Top Of Screen Elevation (ft msl) | Bottom Of Screen Elevation (ft msl) | Screen Length (ft) |
|---|---|---|---|---|---|---|---|---|---|
| 620a | 1 | 90MW0066A | 250473.24 | 869443.82 | 131.91 | 131.70 | -7.59 | -12.59 | 5.00 |
| | 2 | 90JB0001C | 250135.51 | 869662.89 | 126.67 | 126.40 | -7.33 | -12.33 | 5.00 |
| | 3 | 90MW0091D | 249986.00 | 869198.40 | 120.04 | 119.58 | -4.96 | -9.96 | 5.00 |
| 620b | 1 | 90MW0066 | 250478.54 | 869438.32 | 132.36 | 132.11 | -56.14 | -61.14 | 5.00 |
| | 2 | 90JB0001D | 250137.05 | 869657.54 | 126.57 | 126.36 | -32.43 | -37.43 | 5.00 |
| | 3 | 90MW0091C | 249986.50 | 869198.50 | 120.04 | 119.59 | -29.96 | -34.96 | 5.00 |
| 621a | 1 | 90MW0083 | 250477.50 | 869448.80 | 132.26 | 131.81 | 25.26 | 20.26 | 5.00 |
| | 2 | 90MW0084B | 250533.80 | 869844.10 | 135.89 | 135.50 | 30.89 | 25.89 | 5.00 |
| | 3 | 90JB0001B | 250130.63 | 869662.32 | 126.55 | 126.25 | 37.55 | 32.55 | 5.00 |
| 621b | 1 | 90MW0066A | 250473.24 | 869443.82 | 131.91 | 131.70 | -7.59 | -12.59 | 5.00 |
| | 2 | 90MW0068 | 250521.60 | 869837.40 | 135.40 | 135.15 | 0.40 | -4.60 | 5.00 |
| | 3 | 90JB0001C | 250135.51 | 869662.89 | 126.67 | 126.40 | -7.33 | -12.33 | 5.00 |
| 622a | 1 | 90MW0084B | 250533.80 | 869844.10 | 135.89 | 135.50 | 30.89 | 25.89 | 5.00 |
| | 2 | 90JB0004C | 250054.67 | 870042.14 | 132.84 | 132.52 | 35.84 | 30.84 | 5.00 |
| | 3 | 90JB0001B | 250130.63 | 869662.32 | 126.55 | 126.25 | 37.55 | 32.55 | 5.00 |
| 622b | 1 | 90MW0068 | 250521.60 | 869837.40 | 135.40 | 135.15 | 0.40 | -4.60 | 5.00 |
| | 2 | 90JB0004A | 250041.56 | 870035.66 | 133.00 | 132.88 | 4.00 | -1.00 | 5.00 |
| | 3 | 90JB0001C | 250135.51 | 869662.89 | 126.67 | 126.40 | -7.33 | -12.33 | 5.00 |
| 623a | 1 | 90MW0089E | 250400.20 | 870345.30 | 140.08 | 139.73 | 25.08 | 20.08 | 5.00 |
| | 2 | 90MW0084B | 250533.80 | 869844.10 | 135.89 | 135.50 | 30.89 | 25.89 | 5.00 |
| | 3 | 90MW0090E | 250146.20 | 870190.00 | 135.31 | 134.53 | 20.31 | 15.31 | 5.00 |
| 623b | 1 | 90MW0089D | 250398.90 | 870338.70 | 139.93 | 139.62 | -5.07 | -10.07 | 5.00 |
| | 2 | 90MW0068 | 250521.60 | 869837.40 | 135.40 | 135.15 | 0.40 | -4.60 | 5.00 |
| | 3 | 90MW0090D | 250153.10 | 870191.90 | 135.42 | 134.79 | -9.58 | -14.48 | 4.90 |
| 623c | 1 | 90MW0089C | 250399.30 | 870338.40 | 139.93 | 139.60 | -30.07 | -35.07 | 5.00 |
| | 2 | 90MW0084A | 250533.90 | 869838.50 | 135.76 | 135.53 | -24.24 | -29.24 | 5.00 |
| | 3 | 90MW0090C | 250153.00 | 870192.10 | 135.42 | 134.81 | -34.78 | -39.68 | 4.90 |
| 624 | 1 | 90MW0077 | 250683.30 | 870269.10 | 144.39 | 143.99 | -3.61 | -8.61 | 5.00 |
| | 2 | 90MW0068 | 250521.60 | 869837.40 | 135.40 | 135.15 | 0.40 | -4.60 | 5.00 |
| | 3 | 90MW0089D | 250398.90 | 870338.70 | 139.93 | 139.62 | -5.07 | -10.07 | 5.00 |

Data Source: AFCEE, 09 October and 10 November 2000, 16 January 2001, AFCEE-MMR Data Warehouse

ft = feet
ft msl = feet mean sea level
TOC = top of casing

# APPENDIX A

## Responses to Comments on *Fuel Spill-12 Quarterly System Performance and Ecological Impact Monitoring Report, July - September 2000*

**AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE RESPONSES TO EPA COMMENTS ON FUEL SPILL-12 QUARTERLY SYSTEM PERFORMANCE AND ECOLOGICAL IMPACT MONITORING REPORT, JULY - SEPTEMBER 2000 DATED FEBRUARY 2001**

## SPECIFIC COMMENTS

1. **Page 4-1, sec. 4.0, first bullet:** There is no mention of the below design performance of extraction well 90EW0009 (see Table 2-1)? Please discuss in the responses to comments.

   **<u>Response</u>:** Extraction well 90EW0009 is noted to be underperforming by up to eight gallons per minute. This extraction well was maintained according to the schedule outlined below (See response to comment No. 3). The average flow rates from the FS-12 wellfield and other MMR plume wellfields include downtime associated with routine and non-routine operations and maintenance activities. The ongoing well inspection and maintenance program is a proactive approach to maintaining the wellfield.

2. **Page 4-1, sec. 4.0, second bullet:** Was extraction well 90EW0090 also inspected, as noted in the second bullet for several other underperforming extraction wells? If not, will it be inspected?

   **<u>Response</u>:** Please see response to comment No. 3.

3. **Page 4-1, sec. 4.0, second bullet:** There is no timeframe noted for the follow-up inspection or maintenance of the four (4) extractions wells noted. Please provide this information in the response to comments. It is assumed that these efforts will be performed and the problems fixed prior to the opening of Camp Good News.

   **<u>Response</u>:** The following outlines the schedule and the activities conducted at each extraction well cited:

   - Maintenance of extraction well 90EW0009 during March 2001 included surging and pump and motor replacement.
   - Maintenance of extraction well 90EW0011 in January 2001 included surging and pump and motor replacement.
   - Maintenance of extraction well 90EW0012 in January 2001 included surging and pump and motor replacement.
   - Maintenance of extraction well 90EW0014 in February 2001 included surging and pump and motor replacement.
   - Maintenance of extraction well 90EW0015 during February 2001 included surging and pump and motor replacement.

4. **Page 4-2, sec. 4.0, top:** The report notes that 90MW0040 exhibits an increase in EDB concentration relative to previous quarters. This increase is rather significant, having gone from 6.8 µg/L (January) to 7.5 µg/L (March) to 9.8 µg/L (May) to 19.0 µg/L (September). This well is located approximately 400 feet downgradient of the southernmost of the axial extraction wells (90EW0019). Can a plausible scenario be constructed for this elevated domain of EDB having been in the region between 90EW0019 and 90MW0040 since the time of startup of the ETR system (i.e., September 1997)? Has the drawdown of the axial extraction wells slowed the downgradient flow of groundwater in the region just downgradient of 90EW0019 to the extent that a three-year travel time is reasonable? Alternatively, has this high-EDB water somehow bypassed the axial extraction wells? Can existing modeling be exploited to shed light on the origin of this high-EDB water? Backward particle tracking from 90MW0040 may prove insightful. What assurance can be given that this domain of higher-EDB water will be captured by the southeastern extraction fence?

   **Response:** As suggested, backward particle tracking was included in the FS-12 model using the average operating condition flow rates for 3 years. Figure 1 shows that the reverse tracks travel to an area within the original FS-12 plume. It is likely that the stresses from the axial extraction wells have resulted in lower velocities in this area of the plume and relatively short travel distances. As shown in the particle tracking simulation, the presence of this contamination at 90MW0040 is consistent with the predicted remediation process through the year 2000 and indicates that the contamination has not bypassed the axial extraction fence. To determine the flowpaths and fate of the contamination under Model Scenario 46, the recommended operating condition, particles from 90MW0040 were forward tracked for 20 years. Figure 2 shows the particles travel to the southernmost extraction well 90EW0019 within this time frame. Although one may expect the particles from 90MW0040 to travel to the extraction wells along the southern fence, the added reinjection in wells 90RIW0015 through 90RIW0017 have caused gradients in a northerly direction in the vicinity of 90MW0040. Additional modeling of the performance of the extraction wells along the southern fence and the effects of recirculation/gradient reversals is ongoing and will be included in the March 2001 quarterly report.

5. **Page 4-2, sec. 4.0, second bullet:** The report notes that well 90MW0066 is characterized by low DO and elevated iron, manganese, and antimony. Table 2-3 supports these observations; it also shows ORP low (-26 to 117 mV in the past three quarters) relative to most groundwater within FS-12. In the same bullet, it is also noted that well 90MW0015 saw a sudden appearance of cadmium at 13.3 µg/L. While this is noted in the same bullet with the observations concerning apparent reducing conditions in 90MW0066, the redox indicators for 90MW0015 indicate highly oxidizing conditions (DO at 9.23 mg/L, ORP at 360 mV). Can the association of elevated cadmium and oxidizing conditions be rationalized?

**Response:** The association with cadmium and oxidizing conditions usually favors the formation of various carbonates or oxides. In comparison to other metals (Cr, Cu, Ni, and Zn), cadmium has a higher affinity for the carbonate and/or oxide form. The association may, however, be more pH dependent. In circumstances where pH falls below 7.0, cadmium has a lower adsorption capacity than Pb, Cu, or Zn. The pH of the waters at 90MW0015 have ranged from 5.94 to 6.16 for the year 2000. This may provide a partial explanation for how cadmium may exhibit some persistence in the aqueous phase in the presence of highly oxidizing conditions.

6. **Page 4-2, sec. 4.0, last bullet:** The report recommends that new wells be installed downgradient of 90MW0059B and 90MW0049 to delineate better the leading and western edges of the plume. Presumably, wells 101A and 102A, installed between 90MW0059B and the north shore of the pond, and wells 100A/B and 103A, installed downgradient of 90MW0049, represent the implementation of this recommendation. That is, because the SPEIM report covers the period through September 2000, and events have developed rapidly with regard to this portion of the FS-12 plume, the report appears to be somewhat out of date. Or, is it the intent of the report to recommend new wells beyond those named here (the 100-103 series)?

   **Response:** The wells that were recommended in this report are those wells that were installed in November – December 2000. These wells were 90MW0100A,B; 90MW0101A; 90MW0102A; and 90MW0103A. The installation of these monitoring wells was recommended during the reporting period of the document, July – September 2000. Results of the September 2000 round were important in determining well placement in November – December 2000.

7. **Table 2-1** In this table, it is noted that the extraction flowrate from 90EW0021 was increased significantly in September 2000; however, there is no discussion in the text or table regarding this significant increase.

   In this table, a "Total Flowrate" column should be added to this table at the far right-hand end in future quarterly reports.

   **Response:** A column will be added summing the total flow rate to the FS-12 treatment plant. Maintenance was conducted on extraction well 90EW0021 during September 2000. Increased flow rates from this extraction well were recorded from 14 September to 14 October 2000. These increased flow rates were due to the overpumping after this well was maintained. Overpumping after maintenance has been conducted as a part of extraction well maintenance procedures.

8. **Table 2-3** It is noted that the benzene concentrations in well 90MW0001 have exceeded the MCL by approximately 6 times over the last two (2) sampling events (while EDB remains at ND levels). While there is no discussion of these

exceedances/observations in this quarterly report, it is expected that this will be addressed in a subsequently quarterly or annual report. For example, are there additional wells needed in this area to define the benzene MCL exceedances? How will these exceedances be shown on the FS-12 plume map in the future?

**Response:** Monitoring well 90MW0001 is the only location where an MCL exceedance of benzene was detected outside the current delineation of the FS-12 plume. As noted in the report, the plume contour for FS-12 is based on EDB. There are several wells in the general area of 90MW0001 that are currently monitored for VOCs, including benzene. These include source area wells such as 96SV0013 and 96SV0004 and other wells nearby such as 90MW0002 and 90MW0007. The next annual report will address benzene as one of the contaminants of concern and will attempt to characterize its role in the FS-12 plume as well as other VOCs. The delineation of the FS-12 plume will continue to be based on the MMCL contour of 0.02 µg/L of EDB unless mapable exceedances of the MCL are found outside the EDB footprint.

9. **Table 2-7** It is requested that whenever groundwater elevation measurements are taken during a quarterly sampling event that the quarterly report will plot these data on some sort of Figure. Leaving this information to Table 2-7 alone is not sufficient.

   **Response:** Depictions of groundwater elevation measurements for each quarter will be presented in the annual reports. The inclusion of these figures is not warranted in assessing quarterly performance and constitutes an analysis that goes beyond the agreement to maintain quarterly reports as data transmittals.

10. **Appendix E, p. E-4-4, sec. 4.2:** Figure E-2 is a nice graphical visualization of the differences in water quality parameters from upgradient groundwater to plant effluent to downgradient groundwater. It shows, for example, the elevated DO and ORP in effluent water, returning in downgradient groundwater to lower values comparable to upgradient values. In order to display parameters exhibiting a wide range of magnitudes on the same plot, a logarithmic scale is employed. However, it should be noted that the log scale tends to suppress differences within each parameter grouping. This is especially true for pH, which is already a logarithmic scale; the log of the log gives a visual impression of very small differences among the three populations. For example, the mean upgradient pH is 5.28, and the mean effluent pH is 6.50. The pH of the effluent represents a 23% increase; its logarithm increases by only 12%, as reflected in the bar graph. However, the corresponding hydrogen ion concentration decreases by 94% (from 5.25 µM/L to 0.32 µM/L) between upgradient and effluent.

    **Response:** The purpose of the graph in Figure E-2 was not to demonstrate the magnitude of the differences represented in each parameter, but to show that

differences between upgradient groundwater and plant effluent were usually not realized in the downgradient groundwater. The differences in pH, for example, is depicted here as the log of the –log of the hydrogen ion concentration, and the magnitude of the differences represented here is noted to be reduced by the graphic presentation. The intention was not to identify the magnitude of differences in these parameters, but to show that the differences are moderated by the geochemistry of the aquifer. In other words, the nature of the aquifer has a much greater effect on the geochemistry of the groundwater than the treatment system.

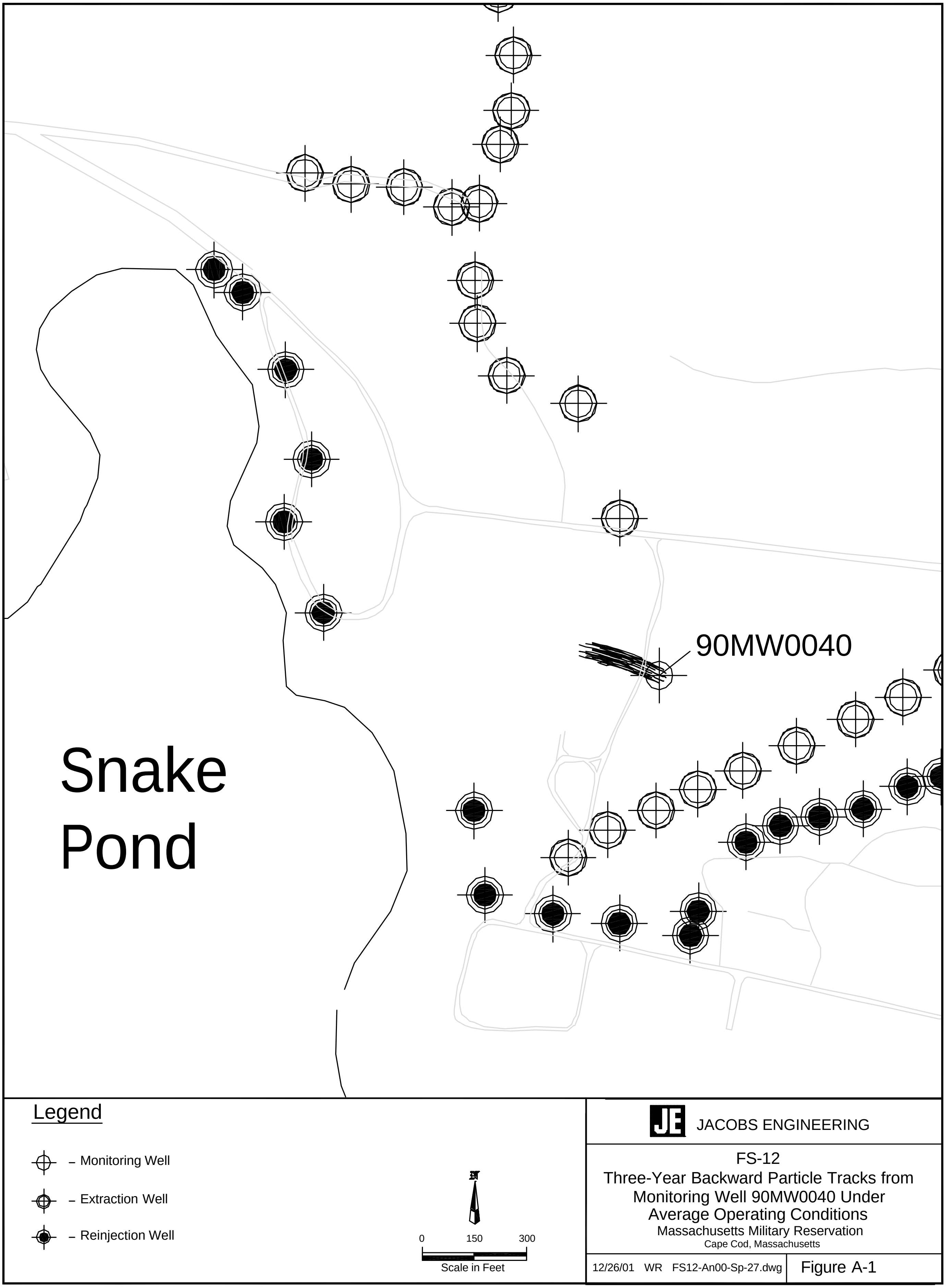
11. **Appendix E, p. E-5-2, sec. 5.0:** *typo:* Change ".... removed by the iron exchange capacity of the greensand" to "... ion exchange capacity …"

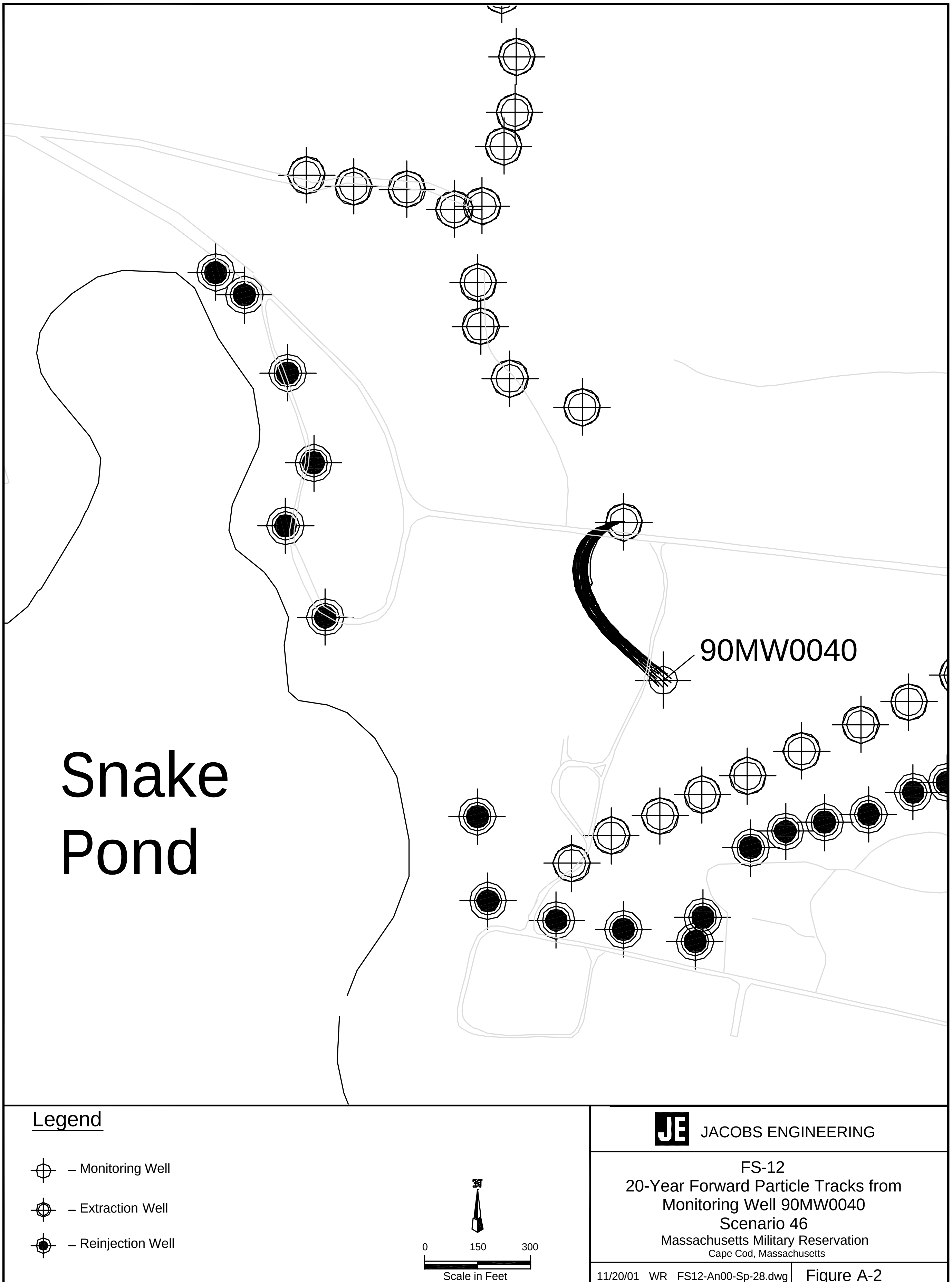
    **<u>Response</u>:** The recommended modification will be made in future reports.

12. **Appendix E, p. E-6-1, sec. 6.0:** The statistical analyses represent a very nice effort to identify impacts of the treatment system on surface water and groundwater quality. In general, the results correspond to expectations; some are obvious (e.g., the demonstration that the primary correlation of temperature variations in surface water is with season; the demonstration that surface water levels depend principally upon year; etc.), some are more subtle (e.g., the demonstration that groundwater is highly "buffered," in the sense that perturbations due to treatment, such as elevated pH, DO, and ORP, are quickly eliminated upon returning the water to the subsurface). The analyses allow for an objective assessment of impacts, and the conclusions presented in section 6.0 are generally consistent. A minor exception is the statement in paragraph 2, "The factor analysis has demonstrated that the treatment system at FS-12 has not affected surface water parameters in Snake Pond." This should be qualified, to the extent that pH was demonstrated to have been impacted, albeit in a minor way, and arguably in a beneficial way (i.e., pH is increased). The unqualified statement given contradicts the earlier conclusion (p. E- 4-2, para. 2) to the effect that "The phase factor had a statistically significant effect on the levels of pH in the ponds …".

    **<u>Response</u>:** The statement "The factor analysis has demonstrated that the treatment system at FS-12 has not affected surface water parameters in Snake Pond" is too definitive in light of the results of the analysis of pH that does show some slight but significant differences that could be attributed to the FS-12 ETR. The statement should read, "The factor analysis has demonstrated that the treatment system at FS-12 has had a limited effect on the surface water parameters in Snake Pond."

(intentionally blank)


90MW0040
Snake Pond
Legend
– Monitoring Well
– Extraction Well
– Reinjection Well
0
150
300
Scale in Feet
JACOBS ENGINEERING
FS-12
Three-Year Backward Particle Tracks from Monitoring Well 90MW0040 Under Average Operating Conditions
Massachusetts Military Reservation
Cape Cod, Massachusetts
12/26/01 WR FS12-An00-Sp-27.dwg
Figure A-1




FS-12
20-Year Forward Particle Tracks from
Monitoring Well 90MW0040
Scenario 46
Massachusetts Military Reservation
Cape Cod, Massachusetts

11/20/01 WR FS12-An00-Sp-28.dwg

Figure A-2

# APPENDIX B

# FS-12 SPEIM Modification Log

# Appendix B
# FS-12 SPEIM Modification Tracking Log

| Date Issued | Initiated By Whom? | Issue | Modification Made | Project Note No. |
|---|---|---|---|---|
| 01-Mar-00 | AFCEE | Substitution of FS-12 source area monitoring wells | Substituted monitoring well 96SV0013 for monitoring well 90WT0013. | AFC-J23-35U40503-A4-0001 |
| 16-Mar-00 | AFCEE/Jacobs | Detection of EDB in shallow microwell ECMWSNP02S | Collected surface water samples and sediment samples co-located with the microwell. | AFC-J23-35U40503-A4-0002 |
| 16-Mar-00 | AFCEE/EPA/DEP | Detection of EDB in microwells ECMWSNP02S and ECMWSNP02D | Collected samples for EDB and VOC analyses from Snake Pond microwells monthly until June 2000 and quarterly thereafter. | AFC-J23-35U40503-A4-0003 |
| 04-Apr-00 | AFCEE/Jacobs | Unable to collect direct impact monitoring samples from wells 90MW0004 and 90PZ0205 | Substituted 90MW0070 and 90MP0059D for collection of direct impact monitoring samples. | AFC-J23-35U40503-A4-0004 |
| 14-Apr-00 | AFCEE/Jacobs | Unexpected detections of EDB in microwells ECMWSNP02S and ECMWSNP02D | Added to monitoring network 16 wells north and east of Snake Pond to be sampled once for EDB analysis. | AFC-J23-35U40503-A4-0005 |
| 17-Apr-00 | AFCEE/Jacobs | Annual sampling of monitoring well 90MW0086C was to be changed to quarterly. | Added quarterly sampling of 90MW0086C for EDB analysis. | AFC-J23-35U40503-A4-0006 |
| 19-Apr-00 | AFCEE/Jacobs | 90MW0010 was omitted from emergency sampling for EDB. | 90MW0010 was added to be sampled once for EDB analysis as part of emergency sampling north and east of Snake Pond. | AFC-J23-35U40503-A4-0007 |
| 02-May-00 | AFCEE/EPA/DEP | Possibility that EDB was upwelling in Snake Pond as evidenced by detections in ECMWSNP02S and ECMWSNP02D | Two drive points were used to sample pore water from Snake Pond sediment. Pore water was sampled for EDB analysis only on a biweekly basis from May through August 2000. | AFC-J23-35U40503-A4-0010 |
| 08-May-00 | AFCEE/Jacobs | Detection of EDB in 90MW0059B, ECMWSNP02S, and ECMWSNP02D on 02 May 2000 | Added wells 90MW0054, 90PZ0205 and 90PZ0204 to emergency sampling network for EDB analysis. | AFC-J23-35U40503-A4-0011 |

# Appendix B
# FS-12 SPEIM Modification Tracking Log

| Date Issued | Initiated By Whom? | Issue | Modification Made | Project Note No. |
|---|---|---|---|---|
| 15-May-00 | AFCEE/EPA/DEP | Possibility of EDB upwelling in Snake Pond | USGS placed 44 diffusion samplers in Snake Pond. | AFC-J23-35U40503-A4-0012 |
| 16-Jun-00 | AFCEE/Jacobs | Needed additional data to construct three-dimensional plume shell models. | Added 25 extraction wells to semiannual sampling network for EDB and VOC analyses. | AFC-J23-35U40503-A4-0014 |
| 17-Jul-00 | AFCEE/Jacobs | Direct impact monitoring results were inconsistent with plant operations. Comparison of upgradient wells with treatment plant effluent were yielding mixed results. | Direct impact monitoring program was modified to analyze plant influent and effluent only. | AFC-J23-35U40501-P1-0010 |
| 23-Aug-00 | AFCEE/Jacobs | Modification of plant direct impact monitoring program | Eliminated physicochemical sampling at 90MW0020, 90MW0070 and 90MP0059D; added monthly physicochemical sampling at influent port 90PLT01001. | AFC-J23-35U40503-A4-0015 |
| 16-Aug-00 | AFCEE/Jacobs | Detection of EDB in 90MW0059B and 90MW0049 | Recommendation to add wells 90MP0059B, 90MW0060A, 90MW0060B and 90MW0049; recommendation to sample 90MW0024 and 90MW0032 for EDB and VOC analyses. | AFC-J23-35U40503-A4-0016 |
| 11-Oct-00 | AFCEE/Jacobs | Piezometer 90P0001C (also known as 90PZ01C01) has more than one location identifier. | The piezometer was renamed 90PZ1-C1. The other piezometers were renamed 90PZ1-A1,2,3 and 90PZ-B1,2,3. | AFC-J23-35U40503-P1-0004 |
| 11-Oct-00 | AFCEE/Jacobs | Needed additional data to construct three-dimensional plume shell models. | Recommendation to add wells 90MW0082A, 90MW0082B and 90MW0017. | AFC-J23-35U40503-A4-0017 |
| 11-Oct-00 | AFCEE/Jacobs | Two wells were never surveyed for top-of-casing elevation. | 90PZ1-C1 and 96MW0012 were surveyed for top-of-casing and ground surface elevations. | AFC-J23-35U40503-A4-0018 |

# Appendix B
# FS-12 SPEIM Modification Tracking Log

| Date Issued | Initiated By Whom? | Issue | Modification Made | Project Note No. |
|---|---|---|---|---|
| 11-Oct-00 | AFCEE/Jacobs | Microwells in Snake Pond need to be sampled with on-site analysis in time for a public presentation. | ECMWSNP02S,D and ECMWSNP03S,D were sampled in September. | AFC-J23-35U40503-A4-0019 |
| 02-Oct-00 and 12-Oct-00 | AFCEE/Jacobs | Additional plume characterization and well site maintenance | Nine wells were sampled for EDB and/or VOC analyses. Installation of three drive points north of Snake Pond. Installation of one monitoring well on eastern shore of Snake Pond. Clearing well 90MW0004. Flushmounting three piezometers. Abandoning two hand pump wells. | AFC-J23-35U40503-P1-0005 |
| 19-Oct-00 | AFCEE/Jacobs | Remediation measures were needed to address EDB contamination below Snake Pond. | Recommendations for portable GAC units were presented. | AFC-J23-35U40501-P1-0007 |
| 26-Oct-00 | AFCEE/Jacobs | Drive points unable to reach 150 feet below ground surface | Replace drive points outlined in AFC-J23-35U40503-A-0020 with three auger borings. | AFC-J23-35U40503-A4-0021 |
| 07-Nov-00 | AFCEE/Jacobs | Detections in screening samples in new well 90MW0100A,B required more downgradient groundwater monitoring. | Monitoring well 90MW0058 is sampled once for EDB analysis. | AFC-J23-35U40503-A4-0022 |
| 07-Nov-00 | AFCEE/Jacobs | Additional monitoring needed downgradient of 90MW0100A,B. | One drive point location outlined in AFC-J23-35U40503-A4-0020 was moved from north of Snake Pond to the eastern shore of Snake Pond. | AFC-J23-35U40503-A4-0023 |

## Appendix B
## FS-12 SPEIM Modification Tracking Log

| Date Issued | Initiated By Whom? | Issue | Modification Made | Project Note No. |
|---|---|---|---|---|
| 07-Dec-00 | AFCEE/Jacobs | Evaluation of physicochemical parameters for performance monitoring evaluation and ecological monitoring was demonstrated to be unnecessary. Assessment of plant performance showed little or no impact of the treatment systems on ecosystems or groundwater downgradient of the treatment systems. | The System Performance and Ecological Impact Monitoring program was modified to eliminate monitoring physicochemical parameters in surface water and groundwater. | AFC-J23-35U40501-P1-0055 |
| 11-Dec-00 | AFCEE/Jacobs | Monitoring of microwells ECMWSNP02S,D and ECMWSNP03S,D for physicochemical parameters and VOC analysis was performed in November 2000, one month prior to normal fourth quarter event. | Microwells ECMWSNP02S,D and ECMWSNP03S,D were identified for monitoring EDB concentrations only. | AFC-J23-35U40503-A4-0024 |
| 19-Dec-00 | AFCEE/Jacobs | Recommendations were made to modify the groundwater monitoring network as a result of an area of contamination under Snake Pond was discovered outside the FS-12 capture zone. | A number of monitoring wells were added to the FS-12 SPEIM program for EDB and VOC monitoring. | AFC-J23-35U40503-P1-0009 |

AFCEE = Air Force Center for Environmental Excellence
EDB = ethylene dibromide
EPA = U.S. Environmental Protection Agency
DEP = Massachusetts Department of Environmental Protection
FS-12 = Fuel Spill-12
GAC = granular activated carbon
Jacobs = Jacobs Engineering Group Inc.
SPEIM = system performance and ecological impact monitoring
USGS = U.S. Geological Survey
VOC = volatile organic compound

ENTERED

JACOBS ENGINEERING®

Engineers and Constructors

Otis ANG Base, MA

**Document Control Number:**
AFC-J23-35U40503-A4-0001

| Client, Project and Location | Project Note- Change Notice | Project No. |
|---|---|---|
| **AFCEE, MMR Plume Response Program FS-12 SPEIM – DO 0030** | | **35-U405-03** |
| **Otis ANG Base, Massachusetts** | **Note No.: 0001** | |

☒ Project Change Notice
☐
☐

| | |
|---|---|
| Location | Jacobs MMR Engineering Offices |
| Date Issued | 3/1/00 |
| Recorded By | Jonathan Wood, JEG |
| Issued By | Lisa Allinger, JEG |
| | Jacobs Project Manager |

Subject
**FS-12 SPEIM Modifications (reference project note AFC-J23-35S19212-P1-0012)**

Participants (* Denotes Part Time Participation)

| Client | Jacobs/MMR | Jacobs/Oak Ridge Via Conference Call |
|---|---|---|
| Rose Forbes, (AFCEE) | Kris Barrett | |
| Mike Minior, (AFCEE) | Mike Goydas | |
| | Jonathon Wood | Others |
| | Mike Morris | Leonard Pinaud, (DEP) |
| | | Paul Marchessault, (EPA) |

| Item | Remarks | Action Required By |
|---|---|---|
| | This project note describes four changes to the FS-12 SPEIM program. | |
| 1. | During the fourth quarter 1999 SPEIM sampling event conducted for FS-12, EDB was detected in monitoring wells 90MW0089E and 90MW0089F at 0.042 μg/L and 0.012 μg/L, respectively. These nested monitoring wells are located approximately 1,500 feet (ft) downgradient of the FS-12 southern toe extraction fence. Well 90MW0089E is screened from +20 to +25 feet mean sea level (ft msl) and well 90MW0089F is screened from +55 to +60 ft msl. The water table in this area is at approximately +65 ft msl. | |
| | A re-sampling for EDB conducted on February 8, 2000 for these two monitoring wells showed EDB concentrations below detectable levels. | |
| | To verify the results at monitoring wells 90MW0089E, F and to assess potential contamination downgradient of the southern toe extraction fence, sampling of select monitoring wells was conducted. The monitoring wells sampled and their associated screen intervals are listed below: | |

| Location | Screen Interval (ft msl) |
|---|---|
| 90MW0089E | 20 - 25 |
| 90MW0089F | 55 - 60 |

JE

| Client, Project and Location<br>AFCEE, MMR Plume Response Program<br>FS-12 SPEIM – DO 0030<br>Otis ANG Base, Massachusetts | Project Note-Change Notice<br>Note No.: 0001 | Project No.<br>35-U405-03 |
|---|---|---|

| Item | Remarks | Action Required By |
|---|---|---|
| | 90MW0088B 9 - 14 | |
| | 90MW0090E 15 - 20 | |
| | 90MW0090F 50 - 55 | |
| | 90MW0084B 26 - 31 | |
| | 90MW0077 (-9) - (-4) | |
| | 96MW0012 8 - 13 | |
| | 90MW0015 (-22) - (-17) | |
| | 90MW0050 (-7) - (-2) | |
| | 90JB0004A (-2) - 8 | |
| | 90JB0004C 28 - 38 | |
| | ECMWSNP02S 20 - 25 | |
| | ECMWSNP02D (-15) - (-10) | |
| | ECMWSNP03S 25 - 30 | |
| | ECMWSNP03D (-15) - (-10) | |

The above monitoring wells were sampled on February 17, 2000 and the groundwater samples were submitted to the MMR onsite laboratory for analytical method E504 (EDB) analysis.

Snake Pond was frozen at the time of sampling, therefore microwells ECMWSNP02S, ECMWSNP02D, ECMWSNP03S, and ECMWSNP03D were not sampled.

The analytical results were received on February 18, 2000. All monitoring wells were non-detect for EDB, except 90MW0050 which is located within the FS-12 plume. EDB was detected at a concentration of 0.030 μg/L in 90MW0050.

2. Tables 1 and 2 of the *Draft FS-12 Phase II Technical Memorandum* Response to EPA Comments, (February 1999) lists the sampling frequency for the Phase II Project 1 (90MW0086A, B, C, D; 90MW0087A, B; and 90MW0088A, B) and Phase II Project 2 monitoring wells (90MW0089A, B, C, D, E, F; 90MW0090A, B, C, D, E, F; and 90MW0091A, B, C, D, E, F). These monitoring wells have been sampled according to the frequency in Tables 1 and 2. According to Section 5.0 of the *Draft FS-12 Phase II Technical Memorandum* these Phase II monitoring wells were to be sampled according to the above–mentioned tables through December 1999. At that time, according to the *Draft FS-12 Phase II Technical Memorandum,* it would be determined which Project 1 and 2 monitoring wells would be

| Item | Remarks | Action Required By |
|---|---|---|
| | included in future SPEIM sampling events.<br><br>The rationale for continued monitoring as stated in the *Draft FS-12 Phase II Technical Memorandum* was..."to continue to monitor groundwater on the eastern flank of the FS-12 plume..."<br><br>In general, the current Phase II PME network (well distribution/sampling frequency) is sufficient to assess system performance, however, two changes are recommended due to the detections mentioned above. Currently, monitoring wells 90MW0089F and 90MW0090F are sampled annually for EDB. It is recommended that these two monitoring wells be sampled quarterly for EDB beginning March 2000. During the February 23, 2000 Weekly Technical Update Meeting, Paul Marchessault (EPA) and Leonard Pinaud (DEP) concurred with this recommendation. Current funding under DO 0030 is for annual sampling only at these wells. | |
| 3. | The FS-12 source area is monitored for EDB and VOCs in the first and third quarters of every year to determine changes in contaminant concentrations in the monitoring wells in the upgradient portion of the FS-12 plume. AFCEE has recommended that 96SV0013 be sampled instead of 90WT0013. The intent is to better assess source area concentrations. Therefore, 96SV0013 will be sampled in the future instead of 90WT0013. | |
| 4. | Due to a downgradient detection of EDB in monitoring well 90MW0077 in the third quarter 1999 (September 1999), it was determined that a focused synoptic water level measurement be conducted at the same time as the fourth quarter 1999 synoptic water level measurement. The focused synoptic event was to better define groundwater flow characteristics near 90MW0077. In the first quarter 2000 System Performance and Ecological Impact Monitoring Report, the FS-12 model will be used to update and better define the groundwater flow within and downgradient of the FS-12 plume. To support the modeling effort, 19 additional monitoring wells mentioned above will be measured once more during the first quarter 2000 synoptic water level event. After the first quarter 2000 synoptic event is complete, the water level measurements at the 19 monitoring wells in the area around 90MW0077 will cease and the standard synoptic water levels will be measured. For a list of these monitoring wells, please see project note AFC-J23-35S19212-P1-0006. | |
| 5. | Based on analytical data at wells 90MW0089E,F and 90MW0077, groundwater modeling (particle tracking) and discussions with the TRET on March 2, 2000 and regulators on February 23, 2000, additional intrusive investigations are not warranted downgradient of the fence. However, a particle tracking analysis has determined that well 96MW0012 is within the | |

| Client, Project and Location<br>**AFCEE, MMR Plume Response Program**<br>**FS-12 SPEIM – DO 0030**<br>**Otis ANG Base, Massachusetts** | **Project Note-Change Notice**<br>**Note No.: 0001** | Project No.<br>**35-U405-03** |
|---|---|---|

| Item | Remarks | Action Required By |
|---|---|---|
| | likely flow path of the EDB detection at well 90MW0089E,F. Based on available data (no construction records are available) this well is screened appropriately and is in the best situation to detect any downgradient movement of the residual EDB. Modeling indicates that the EDB detected at well 90MW0089E,F (in December 1999) should reach this well in about 5 years. This well is not currently in the monitoring network. It is proposed that this well be monitored for EDB semiannually. The next scheduled round would occur in June 2000. | |

Distribution:

Mike Minior, AFCEE/MMR
Jon Davis, AFCEE/MMR
Rose Forbes, AFCEE/MMR
Spence Smith, AFCEE/MMR
Marty Aker, AFCEE/MMR
Carter Fahy, AFCEE/MMR
Dario Beniquez, HQ/AFCEE/ERD
Cathy Kiley, DEP
Robert Lim, EPA

Eric Banks, JEG
Lisa Allinger, JEG
Kris Barrett, JEG
Mike Godyas, JEG
Les Herring, JEG
Fred Stuart, JEG
Drew Tingley, JEG
Jen Diaz, JEG
Lori Fuller, JEG
Katie Kowalski, JEG
Document Control
Project File

JE JACOBS ENGINEERING®
Engineers and Constructors
Otis ANG Base, MA

ENTERED

Document Control Number:
AFC-J23-35U40503-A4-0002

| Client, Project and Location | Project Note-Change Notice | Delivery Order 30 |
|---|---|---|
| AFCEE, MMR Plume Response Program SPEIM Otis ANG Base, Massachusetts | Note No.: 002 | Project Number 35-U405-03 |

| Confirmation of | |
|---|---|
| ☒ Change Notice Project Note-A4<br>☐<br>☐ | Date Held: 3/16/00<br>Location: Jacobs MMR Engineering Offices<br>Date Issued: 3/20/00<br>Recorded By: Mike Moris, JEG |
| Subject<br>**FS-12 SPEIM Modifications—Surface Water and Sediment Sampling—Snake Pond** | Issued By: Lisa Allinger<br>Lisa Allinger<br>Jacobs Project Manager |

Participants (* Denotes Part Time Participation)

| Client | Jacobs/MMR | Jacobs/Oak Ridge<br>Via Conference Call |
|---|---|---|
| Rose Forbes | Mike Morris | |
| Mike Minior | Lisa Allinger | |
| | Ron Citterman | |

| Item | Remarks | Action Required By |
|---|---|---|
| 1. | This project note documents the collection of surface water and sediment samples from a Snake Pond location due to elevated reading of plume contaminants in a shallow microwell.<br><br>A validated detect of EDB at 0.110 μg/L was determined by Ogden at microwell location ECMWSNP02D in Snake Pond. This detect was reported in Ogden's monthly report released on February 10, 2000. As a result, AFCEE collected groundwater samples from microwells ECMWSNP02S and ECMWSNP02D on March 14, 2000 to verify Ogden's results. These groundwater samples were analyzed for EDB and VOCs at an on-site laboratory and the results were released that same afternoon. An FS-12 plume contaminant, EDB, was detected in microwell ECMWSNP02S at 0.404 μg/L and ECMWSNP02D at 1.15 μg/L.<br><br>According to Project Note #AFC-J23-35S1801-P1-0002 dated June 18, 1999, a detection of a plume contaminant in a shallow microwell requires a collection of a surface water sample within three feet of the pond bottom near the microwell location and a sediment sample in proximity to the microwell. Although the EDB concentrations in the microwells were unvalidated, it was necessary to take immediate action. Therefore, it was necessary to collect a surface water sample and a sediment sample at sampling location ECSNP09. This location is within twenty feet of the location of ECMWSNP02. Surface water was collected within three feet of the pond bottom and analyzed for VOCs and EDB. A sediment sample was | |

Distribution: (recommended) COR, IPR POC, JE Ops Lead, Project Manager, Contracts, Project Controls, Project Files, Doc. Control



RECEIVI

| Client, Project and Location<br><br>AFCEE, MMR Plume Response Program<br>SPEIM<br>Otis ANG Base, Massachusetts | Change Notice Project Note<br><br>Note No.: 2 | Delivery Order<br>30<br><br>Project Number<br>35-U405-03 |
|---|---|---|

| Item | Remarks | Action Required By |
|---|---|---|
| | also collected from the pond bottom and was tested for EDB, VOCs, TOC, and grain size. These samples were collected on March 16, 2000. | |

Attachments:

None

Distribution:

Mike Minior, AFCEE/MMR
Jon Davis, AFCEE/MMR
Rose Forbes, AFCEE/MMR
Spence Smith, AFCEE/MMR
Marty Aker, AFCEE/MMR
Carter Fahy, AFCEE/MMR
Dario Beniquez, HQ/AFCEE/ERD
Cathy Kiley, DEP
Robert Lim, EPA

Eric Banks, JEG
Lisa Allinger, JEG
Kris Barrett, JEG
Mike Godyas, JEG
Les Herring, JEG
Fred Stuart, JEG
Drew Tingley, JEG
Ron Citterman, JEG
Katie Kowalski, JEG
Lori Fuller, JEG
Jen Diaz, JEG
Betty Angell, JEG
Project Files
Document Control

JE JACOBS ENGINEERING®
Engineers and Constructors
Otis ANG Base, MA

ENTERED

Document Control Number:
AFC-J23-35U40503-A4-0003

| Client, Project and Location | Project Note-Change Notice | Delivery Order 30 |
|---|---|---|
| AFCEE, MMR Plume Response Program SPEIM Otis ANG Base, Massachusetts | Note No.: 0003 | Project Number 35-U405-03 |

| | | |
|---|---|---|
| Confirmation of<br>☒ Change Notice Project Note-A4<br>☐<br>☐ | Date Held | 3/16/00 |
| | Location | Jacobs MMR Engineering Offices |
| | Date Issued | 3/20/00 |
| | Recorded By | Mike Morris, JEG |
| Subject<br>**FS-12 SPEIM Modifications—Microwell Sampling—Snake Pond** | Issued By | Lisa Allinger<br>Jacobs Project Manager |

Participants (* Denotes Part Time Participation)

| Client | Jacobs/MMR | Jacobs/Oak Ridge Via Conference Call |
|---|---|---|
| Rose Forbes | Mike Morris | |
| Mike Minior | Lisa Allinger | |
| | Mike Goydas | |

| Item | Remarks | Action Required By |
|---|---|---|
| 1. | This project note documents the collection of groundwater samples from Snake Pond microwells.<br><br>A validated detect of ethylene dibromide (EDB) at 0.110 μg/L was reported by Ogden at microwell location ECMWSNP02D in Snake Pond. This detect was reported in Ogden's monthly report released on February 10, 2000. As a result, AFCEE collected groundwater samples from microwells ECMWSNP02S and ECMWSNP02D on March 14, 2000 to verify Ogden's results. These groundwater samples were analyzed for EDB at an on-site laboratory and the results were released that same afternoon. An FS-12 plume contaminant, EDB, was detected in microwell ECMWSNP02S at 0.404 μg/L and ECMWSNP02D at 1.15 μg/L. The remaining microwells in Snake Pond (ECMWSNP03S,D) were sampled on March 16, 2000. Neither of these wells have detectable levels of EDB in the groundwater samples.<br><br>The data were presented at a technical update meeting on March 30, 2000. The participants included representatives of EPA, DEP, AFCEE, and Jacobs Engineering Group. A consensus was reached that additional sampling of the microwells was warranted. It was decided to sample all four microwells once each month for the next two months (April and May 2000) for EDB. Following the April and May 2000 sampling events, the microwells will be placed on a quarterly monitoring program for EDB and volatile organic compounds in lieu of previous semiannual sampling for these parameters. The wells will be sampled June (or the end of May to accommodate the | |



RECEIVE
APR 0 5 2000

| Client, Project and Location | Change Notice Project Note | Delivery Order |
|---|---|---|
| AFCEE, MMR Plume Response Program<br>SPEIM<br>Otis ANG Base, Massachusetts | | 30 |
| | | Project Number<br>35-U405-03 |
| | Note No.: 0003 | |

| Item | Remarks | Action Required By |
|---|---|---|
| | Camp Good News schedule), September, and December 2000. This change notice documents this decision. An additional five sampling events will be conducted in 2000 for groundwater in Snake Pond microwells ECMWSNP02S, ECMWSNP02D, ECMWSNP03S, and ECMWSNP03D. This represents a total of 20 additional groundwater samples to be collected for EDB in 2000, and 8 of those samples analyzed for VOCs. | |

Attachments:

None

Distribution:

Mike Minior, AFCEE/MMR
Jon Davis, AFCEE/MMR
Rose Forbes, AFCEE/MMR
Spence Smith, AFCEE/MMR
Marty Aker, AFCEE/MMR
Carter Fahy, AFCEE/MMR
Dario Beniquez, HQ/AFCEE/ERD
David Miller, HQ/AFCEE/HSW/PKVBC
Cathy Kiley, DEP
Bob Lim, EPA

Eric Banks, JEG
Lisa Allinger, JEG
Kris Barrett, JEG
Mike Goydas, JEG
Les Herring, JEG
Fred Stuart, JEG
Drew Tingley, JEG
Ron Citterman, JEG
Katie Kowalski, JEG
Mike Morris, JEG
Lori Fuller, JEG
Jen Diaz, JEG
Betty Angell, JEG
Project Files
Document Control

ENTERED

**JACOBS ENGINEERING**
Engineers and Constructors
Otis ANG Base, MA

Document Control Number:
AFC-J23-35U40503-A4-0004

| Client, Project and Location | Project Note- Change Notice | Delivery Order 30 |
| --- | --- | --- |
| AFCEE, MMR Plume Response Program SPEIM Otis ANG Base, Massachusetts | Note No.: 0004 | Project Number 35-U405-03 |

| Confirmation of | |
| --- | --- |
| ☒ Change Notice Project Note-A4<br>☐<br>☐ | Date Held 4/4/00<br>Location Jacobs MMR Engineering Offices<br>Date Issued 4/4/00<br>Recorded By Mike Morris, JEG |
| Subject<br>**FS-12 SPEIM Modifications—Direct Impact Monitoring** | Issued By Lisa Allinger<br>Lisa Allinger<br>Jacobs Project Manager |

Participants (* Denotes Part Time Participation)

| Client | Jacobs/MMR | Jacobs/Oak Ridge<br>Via Conference Call |
| --- | --- | --- |
| Rose Forbes | Mike Morris | |
| Mike Minior | Lisa Allinger | |
| | Mike Goydas | |

| Item | Remarks | Action Required By |
| --- | --- | --- |
| 1. | This project note documents the collection of groundwater samples from monitoring wells located near Snake Pond.<br><br>Monthly sampling is conducted for plant direct impact monitoring. This sampling entails monthly sampling of groundwater upgradient of the treatment system and monthly sampling of the FS-12 plant effluent. This work is specified under the *Final Fuel Spill-12 (FS-12) Groundwater Plume Phase II Pre-operational Ecological Sampling Plan* (August 1998)-AFC-J23-35K78412-M7-0036 and *Project Note for Modification of the 1999 Ecological Monitoring Strategy for Reinjection Wells* (July 1999) AFC-J23-35S18901-P1-0003.<br><br>Monitoring well 90MW0004 can no longer be used because of an obstruction that cannot be removed, and piezometer 90PZ0205 can no longer be used because of an access issue. These wells were part of the upgradient monitoring program for the Plant Direct Impact Monitoring. It is proposed that the sampling of these wells be changed as follows:<br><br>90MW0070 to replace 90MW0004. Both wells are located upgradient of the FS-12 treatment system. Both wells are screened at similar depths. 90MW0070 is currently sampled quarterly for EDB.<br><br>90MP0059D to replace 90PZ0205. Both wells are located cross gradient of the FS-12 treatment system. The major difference is the wells are screened at different depths [10.23 to 7.74 ft msl (90MP0059D) and 70.92 to 60.92 | |

RECEIVE
APR 0 5 2000

| Client, Project and Location | Change Notice Project Note | Delivery Order |
|---|---|---|
| AFCEE, MMR Plume Response Program<br>SPEIM<br>Otis ANG Base, Massachusetts | **Change Notice Project Note**<br>**Note No.:** 0004 | Delivery Order<br>30<br>Project Number<br>35-U405-03 |

| Item | Remarks | Action Required By |
|---|---|---|
| | ft msl (90PZ0205)]. Well 90MP0059D is currently sampled quarterly for water levels and should be representative of ambient groundwater upgradient of the treatment system.<br>This change does not entail any additional costs to the original DO 30 scope of work. | |

Attachments:

None

Distribution:

Mike Minior, AFCEE/MMR
Jon Davis, AFCEE/MMR
Rose Forbes, AFCEE/MMR
Spence Smith, AFCEE/MMR
Marty Aker, AFCEE/MMR
Carter Fahy, AFCEE/MMR
Dario Beniquez, HQ/AFCEE/ERD
David Miller, HQ/AFCEE/HSW/PKVBC
Cathy Kiley, DEP
Bob Lim, EPA

Eric Banks, JEG
Lisa Allinger, JEG
Kris Barrett, JEG
Mike Goydas, JEG
Les Herring, JEG
Fred Stuart, JEG
Drew Tingley, JEG
Ron Citterman, JEG
Katie Kowalski, JEG
Mike Morris, JEG
Lori Fuller, JEG
Jen Diaz, JEG
Betty Angell, JEG
Project Files
Document Control

ENTERED

JACOBS ENGINEERING®

Engineers and Constructors

Otis ANG Base, MA

Document Control Number:
AFC-J23-35U40503-A4-0005

| Client, Project and Location | Project Note-Change Notice | Delivery Order 30 |
|---|---|---|
| AFCEE, MMR Plume Response Program SPEIM Otis ANG Base, Massachusetts | Note No.: 0005 | Project Number 35-U405-03 |

| Confirmation of | |
|---|---|
| ☒ Change Notice Project Note-A4 ☐ ☐ | Date Held 4/14/00<br>Location Jacobs MMR Engineering Offices<br>Date Issued 4/17/00<br>Recorded By Mike Morris, JEG |
| Subject<br>**FS-12 SPEIM Modifications—Monitoring North and East of Snake Pond** | Issued By Lisa Allinger<br>Jacobs Project Manager |

Participants (* Denotes Part Time Participation)

| Client | Jacobs/MMR | Jacobs/Oak Ridge Via Conference Call |
|---|---|---|
| Rose Forbes | Mike Morris | |
| Mike Minior | Lisa Allinger | |
| | Mike Goydas | |

| Item | Remarks | Action Required By |
|---|---|---|
| 1. | This project note documents the collection of groundwater samples from monitoring wells located near Snake Pond.<br><br>Sampling has been conducted by AFCEE for groundwater in Snake Pond microwells since 1997. In September 1999, Ogden, an Army envrionmental contractor, sampled microwells ECMWSNP02S, ECMWSNP02D, ECMWSNP03S, and ECMWSNP03D. A validated detect of ethylene dibromide (EDB) at 0.110 $\mu$g/L was reported by Ogden at microwell location ECMWSNP02D. This detect was reported in Ogden's monthly report released on February 10, 2000. The remaining microwells were non-detect for EDB. As a result, AFCEE collected groundwater samples from microwells ECMWSNP02S and ECMWSNP02D on March 14, 2000 to verify Ogden's results. These groundwater samples were analyzed for EDB at an on-site laboratory and the results were released that same afternoon. EDB was detected in microwell ECMWSNP02S at 0.404 $\mu$g/L and ECMWSNP02D at 1.15 $\mu$g/L. The remaining microwells in Snake Pond (ECMWSNP03S,D) were sampled on March 16, 2000. Neither of these wells have detectable levels of EDB in the groundwater samples. A surface water and sediment sample were also collected on March 16, 2000 within 10 feet of microwell ECMWSNP02. The surface water sample was collected in the 0 to 2.5 foot interval above the pond bottom. EDB was not detected in either surface water or sediment samples. The increase of frequency of the sampling of Snake Pond microwells is documented in the following project notes: (1) *FS-12 SPEIM Modifications (Reference Project* | |





RECEIVE

| Client, Project and Location | | |
|---|---|---|
| AFCEE, MMR Plume Response Program<br>SPEIM<br>Otis ANG Base, Massachusetts | **Change Notice Project Note**<br>**Note No.:** 0005 | Delivery Order<br>30<br>Project Number<br>35-U405-03 |

| Item | Remarks | Action Required By |
|---|---|---|
| | *AFC-J23-35S19212-P1-0012),* AFC-J23-35U40503-A4-0001 dated March 1, 2000, (2) *FS-12 SPEIM Modifications—Surface Water and Sediment Sampling—Snake Pond*, AFC-J23-35U40503, dated March 20, 2000, and (3) *FS-12 SPEIM Modifications—Microwell Sampling—Snake Pond*, AFC-J23-35U40503, dated March 20, 2000.<br><br>Sampling was conducted on April 6, 2000 and ECMWSNP02S and ECMWSNP02D had EDB concentrations of 0.962 μg/L and 0.521 μg/L respectively. Sampling was conducted on April 7, 2000 and concentrations of EDB in ECMWSNP03S and ECMWSNP03D were non-detect. The unvalidated data were presented at a meeting (JPAT dry run) on Monday April 10, 2000 and again on Wednesday April 12, 2000 (weekly technical meeting). The participants included representatives of EPA, DEP, AFCEE, and Jacobs Engineering Group. A consensus was reached that additional sampling of monitoring wells north and east of ECMWSNP02S,D was warranted. It was decided to sample the following wells once for EDB only:<br><br>• 90MP0060B<br>• 90MP0060C<br>• 90MP0060E<br>• 90MP0060F<br>• 90MP0059B<br>• 90MP0059C<br>• 90MP0059D<br>• 90MP0059E<br>• 90MP0059F<br>• 90MW0011<br>• 90MW0009<br>• 90MW0017<br>• ECPZSNP01<br>• 90P0001C<br>• 90MW0049<br>• 90WT0016 | |

| Client, Project and Location<br><br>AFCEE, MMR Plume Response Program<br>SPEIM<br>Otis ANG Base, Massachusetts | Change Notice Project Note<br><br>Note No.: 0005 | Delivery Order<br>30<br>Project Number<br>35-U405-03 |
|---|---|---|

| Item | Remarks | Action Required By |
|---|---|---|
| | These wells will be sampled in May 2000 as part of the next FS-12 groundwater sampling quarterly round. The results of this sampling effort will be used to determine locations and sampling frequencies that may be necessary for further monitoring of the FS-12 plume and FS-12 remediation system. | |

Attachments:

None

Distribution:
Mike Minior, AFCEE/MMR
Jon Davis, AFCEE/MMR
Rose Forbes, AFCEE/MMR
Spence Smith, AFCEE/MMR
Marty Aker, AFCEE/MMR
Carter Fahy, AFCEE/MMR
Dario Beniquez, HQ/AFCEE/ERD
David Miller, HQ/AFCEE/HSW/PKVBC
David Hill, ARE (c/o IRP)
Cathy Kiley, DEP
Elliot Jacobs, DEP
Bob Lim, EPA
Eric Banks, JEG
Lisa Allinger, JEG
Kris Barrett, JEG
Mike Goydas, JEG
Les Herring, JEG
Fred Stuart, JEG
Drew Tingley, JEG
Ron Citterman, JEG
Betty Angell, JEG
Katie Kowalski, JEG
Jen Diaz, JEG
Mike Morris, JEG
Lori Fuller, JEG
Jon Wood, JEG
Aaron Silva, JEG
Project Files
Document Control

JE JACOBS ENGINEERING®

Engineers and Constructors

Otis ANG Base, MA

ENTERED

**Document Control Number:**
AFC-J23-35U40503-A4-0006

| Client, Project and Location | Project Note- Change Notice | Delivery Order 30 |
|---|---|---|
| **AFCEE, MMR Plume Response Program SPEIM Otis ANG Base, Massachusetts** | **Note No.: 0006** | Project Number **35-U405-03** |

| | |
|---|---|
| Confirmation of<br>☒ Change Notice Project Note-A4<br>☐<br>☐ | Date Held 4/17/00<br>Location Jacobs MMR Engineering Offices<br>Date Issued 4/17/00<br>Recorded By Mike Morris, JEG |
| Subject<br>**FS-12 SPEIM Modifications—Change in Frequency of 90MW0086C** | Issued By Lisa Allinger<br>Jacobs Project Manager |

Participants (* Denotes Part Time Participation)

| Client | Jacobs/MMR | Jacobs/Oak Ridge Via Conference Call |
|---|---|---|
| Rose Forbes | Mike Morris | |
| Mike Minior | Lisa Allinger | |
| | Mike Goydas | |

| Item | Remarks | Action Required By |
|---|---|---|
| 1. | According to the DO 30 SPEIM proposal, monitoring well 90MW0086C was to be sampled annually for EDB. However, according to Project Note AFC-J23-35U40503-A4-0001 *FS-12 SPEIM Modifications (reference project note AFC-J23-35S19212-P1-0012)* this well was to be sampled for EDB every quarter. This project note documents the change of frequency of sampling for monitoring well 90MW0086C from annual to quarterly for EDB in groundwater. | |

Attachments:

None

Distribution:

Mike Minior, AFCEE/MMR
Jon Davis, AFCEE/MMR
Rose Forbes, AFCEE/MMR
Spence Smith, AFCEE/MMR
Marty Aker, AFCEE/MMR
Carter Fahy, AFCEE/MMR
Dario Beniquez, HQ/AFCEE/ERD
David Hill, ARE (c/o IRP)
Cathy Kiley, DEP
Elliot Jacobs, DEP
Bob Lim, EPA
Eric Banks, JEG
Lisa Allinger, JEG
Kris Barrett, JEG
Mike Goydas, JEG
Les Herring, JEG
Fred Stuart, JEG
Drew Tingley, JEG
Ron Citterman, JEG
Betty Angell, JEG
Katie Kowalski, JEG
Jen Diaz, JEG
Mike Morris, JEG
Lori Fuller, JEG
Aaron Silva, JEG
Jon Wood, JEG
Document Control



I:\\

RECEIVE

JACOBS ENGINEERING®

Engineers and Constructors

Otis ANG Base, MA

ENTERED

**Document Control Number:**
AFC-J23-35U40503-A4-0007

| Client, Project and Location | Project Note- Change Notice | Delivery Order 30 / Project Number 35-U405-03 |
|---|---|---|
| **AFCEE, MMR Plume Response Program SPEIM Otis ANG Base, Massachusetts** | **Note No.: 0007** | |

| Confirmation of | | |
|---|---|---|
| ☒ Change Notice Project Note-A4 | Date Held | 4/19/00 |
| ☐ | Location | Jacobs MMR Engineering Offices |
| ☐ | Date Issued | 4/19/00 |
| | Recorded By | Mike Morris, JEG |
| Subject: **FS-12 SPEIM Modifications—Monitoring North and East of Snake Pond—90MW0010** | Issued By | Lisa Allinger, Jacobs Project Manager |

Participants (* Denotes Part Time Participation)

| Client | Jacobs/MMR | Jacobs/Oak Ridge Via Conference Call |
|---|---|---|
| Rose Forbes | Mike Morris | |
| Mike Minior | Lisa Allinger | |
| | Mike Goydas | |

| Item | Remarks | Action Required By |
|---|---|---|
| 1. | This project note documents an adjustment to project note AFC-J23-35U40503-A4-0005 entitled *FS-12 SPEIM Modifications—Monitoring North and East of Snake Pond*. In that note, 16 wells are listed for sampling of EDB for one event in May 2000. However one well, 90MW0010, was omitted from the list. Estimated costs for the previous project note included costs for 90MW0010. Therefore, this change notice documents the inclusion of 90MW0010 without any cost correction for the planned work. | |

Attachments:

None

Distribution:

Mike Minior, AFCEE/MMR
Jon Davis, AFCEE/MMR
Rose Forbes, AFCEE/MMR
Spence Smith, AFCEE/MMR
Marty Aker, AFCEE/MMR
Carter Fahy, AFCEE/MMR
Dario Beniquez, HQ/AFCEE/ERD
David Miller, HQ/AFCEE/HSW/PKVBC
Cathy Kiley, DEP
Elliot Jacobs, DEP
Bob Lim, EPA
David Hill, ARE (c/o IRP)
Eric Banks, JEG
Lisa Allinger, JEG
Kris Barrett, JEG
Mike Goydas, JEG
Les Herring, JEG
Fred Stuart, JEG
Drew Tingley, JEG
Ron Citterman, JEG
Betty Angell, JEG
Katie Kowalski, JEG
Jen Diaz, JEG
Mike Morris, JEG
Lori Fuller, JEG
Jon Wood, JEG
Aaron Silva, JEG
Project Files
Document Control

JACOBS ENGINEERING®

Engineers and Constructors

Otis ANG Base, MA

ENTERED

**Document Control Number:**
AFC-J23-35U40503-A4-0010

| Client, Project and Location | Project Note-Change Notice | Delivery Order 30 |
|---|---|---|
| **AFCEE, MMR Plume Response Program SPEIM Otis ANG Base, Massachusetts** | **Note No.: 0010** | Project Number **35-U405-03** |

| | |
|---|---|
| Confirmation of<br>☒ Change Notice Project Note-A4<br>☐<br>☐ | Date Held: 5/2/00<br>Location: Jacobs MMR Engineering Offices<br>Date Issued: 5/2/00<br>Recorded By: Mike Morris, JEG |
| Subject<br>**FS-12 SPEIM Modifications—Drive Points in Snake Pond** | Issued By: Lisa Allinger<br>Lisa Allinger<br>Jacobs Project Manager |

Participants (* Denotes Part Time Participation)

| Client | Jacobs/MMR | Jacobs/Oak Ridge<br>Via Conference Call |
|---|---|---|
| Rose Forbes | Mike Morris | |
| Mike Minior | Lisa Allinger | |
| | Mike Goydas | |

| Item | Remarks | Action Required By |
|---|---|---|
| 1. | Detections of EDB in microwells ECMWSNP02S and ECMWSNP02D have resulted in the actions outlined in project notes AFC-J23-35U40503-A4-0003, *FS-12 SPEIM Modifications—Microwell Sampling—Snake Pond* issued 3/16/00; AFC-J23-35U40503-A4-0005, *FS-12 SPEIM Modifications—Monitoring North and East of Snake Pond*, issued 4/14/00; and AFC-J23-35U40503-A4-0007, *FS-12 SPEIM Modifications—Monitoring North and East of Snake Pond—90MW0010*, issued 4/19/00. Additional sampling has been proposed by the Massachusetts Department of Public Health (MDPH) for screening surface water and pore water samples in areas where the public may be exposed to levels of EDB that may be upwelling in Snake Pond. AFCEE proposed, in a letter dated April 25, 2000 to MPDH, that the Sandwich Board of Health (SBOH) sample surface water at two locations in Snake Pond. AFCEE agreed to sample pore water from the bottom of Snake Pond using drive points on a biweekly bases in two locations from mid-May through August, 2000 (16 samples total). The two locations are Camp Good News beach and near the location of microwell ECMWSNP02S,D. The temporary drive points will be inserted approximately one foot into the bottom of the pond and the pore water sampled for EDB at an on-base laboratory. The turnaround time for the results using this lab is approximately 24 hours for unvalidated data.<br><br>A site visit conducted by AFCEE, MDPH, Jacobs Engineering Group and Camp Good News on May 2, 2000 confirmed the location of one drive point within 5 feet of ECMWSNP02S,D to collect pore water samples. It was | |



RECEIVEI

| Client, Project and Location<br><br>**AFCEE, MMR Plume Response Program SPEIM**<br>**Otis ANG Base, Massachusetts** | **Change Notice Project Note**<br><br>**Note No.:** 0010 | **Delivery Order** 30<br><br>**Project Number** 35-U405-03 |
|---|---|---|

| Item | Remarks | Action Required By |
|---|---|---|
| | decided the second drive point would be located on the north end of Camp Good News Beach on an inland point due east of the north island in Snake Pond, southeast of ECMWSNP03S,D. The drive point will be installed approximately 20 feet west from the present shoreline. Sampling is to be conducted starting between 7:00 am and 8:00 am to minimize disruption of camp activites. | |

Attachments:

None

Distribution:

Mike Minior, AFCEE/MMR
Jon Davis, AFCEE/MMR
Rose Forbes, AFCEE/MMR
Spence Smith, AFCEE/MMR
Marty Aker, AFCEE/MMR
Carter Fahy, AFCEE/MMR
Dario Beniquez, HQ/AFCEE/ERD
Cathy Kiley, DEP
Elliot Jacobs, DEP
Bob Lim, EPA
David Hill, ARE (c/o IRP)
Eric Banks, JEG
Lisa Allinger, JEG
Kris Barrett, JEG
Mike Goydas, JEG
Les Herring, JEG
Fred Stuart, JEG
Drew Tingley, JEG
Ron Citterman, JEG
Betty Angell, JEG
Katie Kowalski, JEG
Jen Diaz, JEG
Mike Morris, JEG
Lori Fuller, JEG
Jon Wood, JEG
Aaron Silva, JEG
Project Files
Document Control

AFC-J23-35U40503-A4-0011

ENTERED JV

| Client, Project and Location | Change Notice Project Note | Delivery Order 30 |
|---|---|---|
| **AFCEE, MMR Plume Response Program**<br>**SPEIM**<br>**Otis ANG Base, Massachusetts** | **Note No.:** 0011 | Project Number **35-U405-03** |

| Item | Remarks | Action Required By |
|---|---|---|

Confirmation of

- ☒ Change Notice Project Note-A4
- ☐
- ☐

| | |
|---|---|
| Date Held | 5/8/00 |
| Location | Jacobs MMR Engineering Offices |
| Date Issued | 5/8/00 |
| Recorded By | Jonathan Wood, JEG |
| Issued By | Lisa Allinger, JEG |

Lisa Allinger

Jacobs Project Manager

Subject

**FS-12 SPEIM Modifications—Sampling of three monitoring well.**

Participants (* Denotes Part Time Participation)

| Client | Jacobs/MMR | | Jacobs/Oak Ridge Via Conference Call |
|---|---|---|---|
| Rose Forbes | Jonathan Wood | Mike Morris | |
| | Mike Goydas | Lisa Allinger | |

| Item | Remarks | Action Required By |
|---|---|---|
| 1. | Based upon the detections of EDB in monitoring wells 90MP0059B (0.016 µg/L), ECMWSNP02S (0.967 µg/L), ECMWSNP02D (0.112 µg/L) on May 2, 2000, it is necessary to sample additional monitoring wells to complete the characterization of the EDB contamination in the FS-12 plume area north and west of Snake Pond. It is recommended to sample wells 90MW0054, 90PZ0204 and 90PZ0205 once for EDB only. These samples would be submitted to the MMR onsite laboratory for 24-hour turnaround. Monitoring well 90MW0054 was last sampled on 5/5/99 and was nondetect for EDB. Piezometer 90PZ0205 was last sampled on 5/3/99 and was nondetect for EDB. Piezometer 90PZ0204 has not been sampled previously for EDB. This sampling will be conducted before May 31, 2000. | |

Attachments:

None

Distribution:

Mike Minior, AFCEE/MMR
Jon Davis, AFCEE/MMR
Rose Forbes, AFCEE/MMR
Spence Smith, AFCEE/MMR
Marty Aker, AFCEE/MMR
Carter Fahy, AFCEE/MMR
Dario Beniquez, HQ/AFCEE/ERD
Cathy Kiley, DEP
Elliot Jacobs, DEP
Bob Lim, EPA
David Hill, ARE (c/o IRP)
Eric Banks, JEG
Lisa Allinger, JEG
Kris Barrett, JEG
Mike Goydas, JEG
Les Herring, JEG
Fred Stuart, JEG
Drew Tingley, JEG
Ron Citterman, JEG
Betty Angell, JEG
Katie Kowalski, JEG
Jen Diaz, JEG
Mike Morris, JEG
Lonnie Fallin, JEG
Jon Wood, JEG
Aaron Silva, JEG
Project Files
Document Control



RECEIVE
MAY 1 6 200

ENTERED

JACOBS ENGINEERING®

Engineers and Constructors

Otis ANG Base, MA

**Document Control Number:**
AFC-J23-35U40503-A4-0012

Client, Project and Location

**AFCEE, MMR Plume Response Program**
**SPEIM**
**Otis ANG Base, Massachusetts**

# Project Note-Change Notice

**Note No.: 0012**

Delivery Order
30

Project Number
35-U405-03

Confirmation of

☒ Change Notice Project Note-A4
☐
☐

| | |
|---|---|
| Date Held | 5/15/00 |
| Location | Jacobs MMR Engineering Offices |
| Date Issued | 5/15/00 |
| Recorded By | Mike Morris, JEG |
| Issued By | Lisa Allinger - Lisa Allinger<br>Jacobs Project Manager |

Subject

**FS-12 SPEIM Modifications—Diffusion Sampling in Snake Pond**

Participants (* Denotes Part Time Participation)

| Client | Jacobs/MMR | Jacobs/Oak Ridge<br>Via Conference Call |
|---|---|---|
| Rose Forbes | Mike Morris | |
| Mike Minior | Lisa Allinger | |
| | Mike Goydas | |

| Item | Remarks | Action Required By |
|---|---|---|
| 1. | Detections of EDB in microwells ECMWSNP02S and ECMWSNP02D have resulted in the actions outlined in project notes AFC-J23-35U40503-A4-0003, *FS-12 SPEIM Modifications—Microwell Sampling—Snake Pond* issued 3/16/00; AFC-J23-35U40503-A4-0005, *FS-12 SPEIM Modifications—Monitoring North and East of Snake Pond*, issued 4/14/00; AFC-J23-35U40503-A4-0007, *FS-12 SPEIM Modifications—Monitoring North and East of Snake Pond—90MW0010*, issued 4/19/00; and AFC-J23-35U40503-A4-0010, *FS-12 SPEIM Modifications—Drive Points in Snake Pond*, issued May 2, 2000. Additional sampling has been proposed to map the areas of Snake Pond where EDB may be upwelling from the groundwater associated with the FS-12 plume. The USGS has agreed to place water/water diffusion samplers in Snake Pond along nine transects. A total of 41 water/water diffusion samplers will be buried 6 inches in the pond sediments. An additional three water/water diffusion samplers will be placed on the surface of the pond sediment. The USGS will be placing these samplers in the pond on May 16, 2000 and retrieving them on May 30, 2000. USGS will supply two VOC vials per sample. Jacobs will supply the chain-of-custody forms and labels. On May 30, 2000 Jacobs will assume custody of the samples. A total of 44 samples will be collected in this manner. In addition, four duplicate and 2 MS/MSD samples will be collected. Therefore, a total of 50 samples will be analyzed. These samples will be delivered to the on-site lab and tested for EDB with unvalidated results delivered within 24 hours. | |

<table>
<tr><td>Client, Project and Location<br><br>AFCEE, MMR Plume Response Program<br>SPEIM<br>Otis ANG Base, Massachusetts</td><td>Change Notice Project Note<br><br>Note No.: 0012</td><td>Delivery Order<br>30<br>Project Number<br>35-U405-03</td></tr>
</table>

| Item | Remarks | Action Required By |
|---|---|---|
| | | |

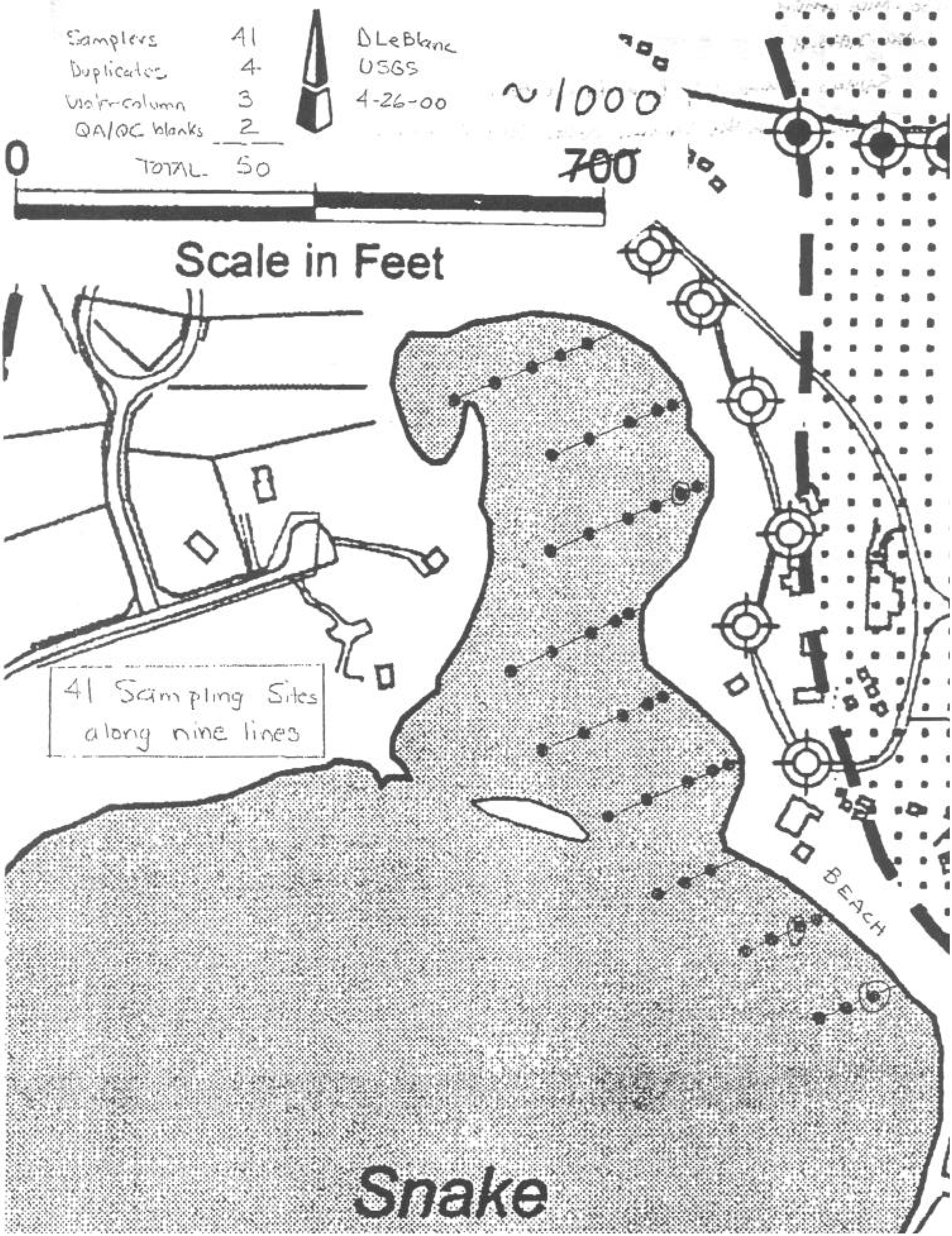
Attachments: Location of 41 Sampling Sites in Snake Pond

Distribution:

Mike Minior, AFCEE/MMR
Jon Davis, AFCEE/MMR
Rose Forbes, AFCEE/MMR
Spence Smith, AFCEE/MMR
Marty Aker, AFCEE/MMR
Carter Fahy, AFCEE/MMR
Dario Beniquez, HQ/AFCEE/ERD
Cathy Kiley, DEP
Elliot Jacobs, DEP
Bob Lim, EPA
David Hill, ARE (c/o IRP)

Eric Banks, JEG
Lisa Allinger, JEG
Kris Barrett, JEG
Mike Goydas, JEG
Les Herring, JEG
Fred Stuart, JEG
Drew Tingley, JEG
Ron Citterman, JEG
Betty Angell, JEG
Katie Kowalski, JEG
Jen Diaz, JEG

Mike Morris, JEG
Lonnie Fallin, JEG
Jon Wood, JEG
Aaron Silva, JEG
Project Files
Document Control


Samplers 41
Duplicates 4
Water-column 3
QA/QC blanks 2
TOTAL 50
D LeBlanc
USGS
4-26-00
~1000
0
700
Scale in Feet
41 Sampling Sites along nine lines
BEACH
Snake

ENTERED

**JACOBS ENGINEERING**
**Engineers and Constructors**
Otis ANG Base, MA

Document Control Number:
AFC-J23-35U40503-A4-0014

| Client, Project and Location | Project Note-Change Notice | Delivery Order 30 |
|---|---|---|
| **AFCEE, MMR Plume Response Program SPEIM Otis ANG Base, Massachusetts** | **Note No.: 0014** | Project Number **35-U405-03** |

| Confirmation of | |
|---|---|
| ☒ Change Notice Project Note-A4<br>☐<br>☐ | Date Held: 6/16/00<br>Location: Jacobs MMR Engineering Offices<br>Date Issued: 6/16/00<br>Recorded By: Mike Morris, JEG |
| Subject<br>**FS-12 SPEIM Modifications—Extraction Well Sampling** | Issued By: Lisa Allinger<br>Jacobs Project Manager |

Participants (* Denotes Part Time Participation)

| Client | Jacobs/MMR | Jacobs/Oak Ridge Via Conference Call |
|---|---|---|
| Rose Forbes | Mike Morris | |
| Spence Smith | Lisa Allinger | |
| | Mike Goydas | |

| Item | Remarks | Action Required By |
|---|---|---|
| 1. | The sampling of extraction wells was included in the DO 30 proposal for the 2000 sampling events. The objective of this sampling change was to aid in the generation of more accurate three-dimensional models of the FS-12 plume to understand plume dynamics. This three dimensional portrayal of the FS-12 plume will provide the details necessary to optimize the well network and determine the effectiveness of adaptive pumping strategies. For FS-12, this included the following extraction wells:<br><br>90EW0006<br>90EW0007<br>90EW0008<br>90EW0009<br>90EW0010<br>90EW0011<br>90EW0012<br>90EW0013<br>90EW0014<br>90EW0015 | |

| Client, Project and Location<br><br>AFCEE, MMR Plume Response Program<br>SPEIM<br>Otis ANG Base, Massachusetts | Change Notice – Project Note<br><br>Note No.: 0014 | Delivery Order<br>30<br><br>Project Number<br>35-U405-03 |
|---|---|---|

| Item | Remarks | Action Required By |
|---|---|---|
| | 90EW0016<br>90EW0017<br>90EW0018<br>90EW0019<br>90EW0020<br>90EW0021<br>90EW0022<br>90EW0023<br>90EW0024<br>90EW0025<br>90EW0026<br>98EW0027<br>90EW0028<br>90EW0029<br>90EW0030<br><br>This constitutes a total of 25 extraction wells that will be sampled semiannually for volatile organic compounds (VOCs) and ethylene dibromides (EDB).<br><br>In addition, several analyses are presented in the DO 30 proposal for the extraction well sampling that do not meet the objective of developing a three-dimensional plume model. These analyses were:<br><br>Metals<br>Total dissolved solids (TDS)<br>Total suspended solids (TSS)<br>Total organic carbon (TOC)<br><br>Therefore, these analyses should no longer be performed in the extraction well samples. The extraction wells should be sampled semiannually for VOCs and EDB only. | |

| Client, Project and Location<br><br>AFCEE, MMR Plume Response Program<br>SPEIM<br>Otis ANG Base, Massachusetts | Change Notice – Project Note<br><br>Note No.: 0014 | Delivery Order<br>30<br><br>Project Number<br>35-U405-03 |
|---|---|---|

| Item | Remarks | Action Required By |
|---|---|---|
| | | |

Attachments: None

Distribution:
Spence Smith, AFCEE/MMR
Jon Davis, AFCEE/MMR
Rose Forbes, AFCEE/MMR
Marty Aker, AFCEE/MMR
Carter Fahy, AFCEE/MMR
David Hill, ARE (c/o IRP)
Eric Banks, JEG
Lisa Allinger, JEG
Kris Barrett, JEG
Mike Goydas, JEG
Les Herring, JEG
Fred Stuart, JEG
Drew Tingley, JEG
Ron Citterman, JEG
Betty Angell, JEG
Katie Kowalski, JEG
Jen Diaz, JEG
Mike Morris, JEG
Jon Wood, JEG
Lonnie Fallin, JEG
Project Files
Document Control

ENTERED

JACOBS ENGINEERING®
Engineers and Constructors
Otis ANG Base, MA

Document Control Number:
AFC-J23-35U40501-P1-0010

| Client, Project and Location | Project Note | Project No. |
|---|---|---|
| **AFCEE, MMR Plume Response Program DO 30 SPEIM Otis ANG Base, Massachusetts** | **Note No.: 0010** | **35-U40501** |

| Confirmation of | |
|---|---|
| ☐ Project Staff Meeting-P1<br>☐ Client Meeting-P4<br>X Amendment to Sampling Plans | Date Held<br>Location 318E<br>Date Issued July 17, 2000<br>Recorded By Kirk Morris |
| Subject<br>**Modification to Direct Impact Monitoring Program** | Issued By Lisa Allinger<br>Lisa Allinger<br>Jacobs Project Manager |

Participants (* Denotes Part Time Participation)

| Client | Jacobs/MMR |
|---|---|
| Spence Smith | Kirk Morris |
| | Lisa Allinger |

| Item | Remarks | Action Required By |
|---|---|---|
| 1. | Direct impact monitoring is an aspect of the ecological impact monitoring program that is ongoing for six treatment systems: CS-10 Sandwich Road, FS-12, LF-1, Ashumet Valley-Plant A, and two recirculating wells (Wheeler Road and Hillside Ave) associated with SD-5 South. Direct impact monitoring is performed to assess whether the treatment system is affecting the measured properties of the treated water before it is reinjected into the aquifer.<br><br>Direct impact monitoring entails sampling of groundwater from upgradient wells and effluent ports from the treatment systems once each month (Table 1). The samples are analyzed for physicochemical parameters; field parameters are measured at the time of sampling. Comparative statistics are run on the data to assess whether there is a statistically significant difference between the parameters for the upgradient groundwater and the plant effluent. | |
| 2. | The present sampling design is unbalanced, in that for each sampling round there are three upgradient groundwater results for every one effluent result. This reduces the power of the comparative statistics and introduces an additional source of error. In the case of the CS-10 Sandwich Road treatment system, an additional source of variability is introduced because plant effluent is a combination of treated water from the SD-5 and CS-10 wellfields. The results of this combined effluent sample are then compared to the results of samples from the plume-specific upgradient groundwater. | |
| 3. | AFCEE proposes to alter direct impact monitoring to allow for a more direct comparison of influent and effluent data, thereby providing better information about treatment performance. For each of the treatment systems listed in Item 1, AFCEE proposes to replace sampling from the upgradient wells with sampling from the treatment system influent (Table 2). Note that for the CS-10 Sandwich Road treatment system, one combined influent sample will be collected in addition to one sample from each of the separate influent lines during each monthly sampling event. These data will allow for a direct comparison of combined influent and combined effluent. Data will also be | |

available to assess the effect on the combined influent from each of its components. The parameters analyzed for and frequency of sampling will remain the same as under the present direct impact monitoring program.

4. Sampling of the effluent from the treatment system will also remain the same as under the current direct impact monitoring program. Note that the groundwater sampling that is to be eliminated under this project note applies only to the direct impact monitoring portion of the system performance and ecological impact monitoring (SPEIM) program. Sampling of these wells under other programs will continue, as appropriate.

5. Concurrence of agreement for replacing sampling of upgradient monitoring wells with sampling of influent at each of the six groundwater treatment systems is represented by the signatures below:

AFCEE Project Manager

DEP Project Manager

Paul M. Marchessault

EPA Project Manager

Jacobs Project Manager

Attachments: Table 1, Direct Impact Monitoring Locations (Current)
Table 2, Direct Impact Monitoring Locations (Proposed)

Distribution:
Spence Smith, AFCEE/MMR
Rose Forbes, AFCEE/MMR
Marty Aker, AFCEE/MMR
Carter Fahy, AFCEE/MMR
Bob Lim, EPA
Elliott Jacobs, DEP
David Hill, ARE (c/o IRP)
Thomas Cambareri, TRET
Ed Eichner, TRET
Mike Hutcheson, TRET
Ray Kutzman, TRET
Greg Sobel, TRET
Patti Tyler, TRET
Warren Webb, TRET
Richard Willey, TRET

Lisa Allinger, JEG
Kris Barrett, JEG
Jon Blount, JEG
Jeff Carman, JEG
Dave DelMarco, JEG
Jen Diaz, JEG
Lauren Foster, JEG
Steve Fox, JEG
Mike Goydas, JEG
Kirk Morris, JEG
Mike Morris, JEG
Mary O'Reilly, JEG
Drew Tingley, JEG
Doc. Control File, JEG (2)

## Table 1
## Direct Impact Monitoring Sampling Locations (Current)

| Plume ID | Treatment Facility Name | Upgradient Monitoring Well IDs | Effluent Sampling Port IDs |
|---|---|---|---|
| SD-5N | Sandwich Road | 24MW0322, 28MW0021, 28MW0574 | 28PLT01035 |
| SD-5S Hoopole Road | Sandwich Road | NA | 28PLT01035 |
| CS-10 SR | Sandwich Road | 03MW0057A, 03MW0104A, 03MW0113A | 28PLT01035 |
| FS-12 | FS-12 | 90MW0020, 90MW0070, 90MW0059D | 90PLT01053 |
| LF-1 | LF-1 | 27MW0101A & B 27MW0102A & B 27MW0107A & B | 27PLT01004 |
| Ashumet Valley | Ashumet Valley Plant A | 95MW0215A, 30MW0585A, 95MW0210A | 95PLT01004 |
| SD-5S Axial | Two recirculating wells | 24MW0322, 28MW0021, 28MW0574 | 28RW1101EF, 28RW1102EF |

Samples to be collected monthly and analyzed for physicochemical parameters. Field parameters to be measured at the time of sample location.
CS-10 SR=Chemical Spill 10 Sandwich Road
FS-12=Fuel Spill 12
LF-1=Landfill 1
SD-5N=Storm Drain 5 North
SD-5S=Storm Drain 5 South

## Table 2
## Direct Impact Monitoring Sampling Locations (Proposed)

| Plume ID | Treatment Facility Name | Influent Port(s) Ids | Effluent Port(s) Ids |
|---|---|---|---|
| SD-5N | Sandwich Road | 28PLT01001 | 28PLT01035 |
| CS-10 SR | Sandwich Road | 28PLT01048 | 28PLT01035 |
| SD5S Hoopole Rd | Sandwich Road | 28PLT01050 | 28PLT01035 |
| Combination of SD- 5N CS-10 SR, SD-5S Hoopole Rd | Sandwich Road | 28PLT01049 | 28PLT01035 |
| FS-12 | FS-12 | 90PLT01001 | 90PLT01053 |
| LF-1 | LF-1 | 27PLT01001 | 27PLT01004 |
| Ashumet Valley | Ashumet Valley-(Plant A only) | 95PLT01001 | 95PLT01004 |
| SD-5S Axial | Recirculating well-Wheeler Road | 28RW1101IN | 28RW1101EF |
| SD-5S Axial | Recirculating Well-Hillside Ave. | 28RW1102IN | 28RW1102EF |

Samples to be collected monthly and analyzed for physicochemical parameters. Field parameters to be measured at the time of sample collection.
CS-10 SR=Chemical Spill 10 Sandwich Road
FS-12=Fuel Spill 12
LF-1=Landfill 1
SD-5N=Storm Drain 5 North
SD-5S=Storm Drain 5 South

JACOBS ENGINEERING
Engineers and Constructors
Otis ANG Base, MA

ENTERED

Document Control Number:
AFC-J23-35U40503-A4-0015

| Client, Project and Location | Change Notice Project Note | Delivery Order 30 |
|---|---|---|
| AFCEE, MMR Plume Response Program<br>Fuel Spill-12 SPEIM<br>Otis ANG Base, Massachusetts | Note No.: 0015 | Project Number 35-U405-03 |

| Confirmation of | |
|---|---|
| ☒ Change Notice Project Note-A4<br>☐<br>☐ | Date Held<br>Location<br>Date Issued August 23, 2000<br>Recorded By Kirk Morris |
| Subject<br>**Revisions to the FS-12 SPEIM Well Networks (Direct Impact Monitoring)** | Issued By Lisa Allinger<br>Jacobs Project Manager |

Participants (* Denotes Part Time Participation)

| Client | Jacobs/MMR | Jacobs/Oak Ridge |
|---|---|---|
| Spence Smith | Kirk Morris | Via Conference Call |
| | Lisa Allinger | Others |

| Item | Remarks | Action Required By |
|---|---|---|
| | Direct impact monitoring associated with the system performance and ecological impact monitoring (SPEIM) program under Delivery Order (DO) 0030 has been revised per Project Note AFC-J23-35U40501-P1-0010, approved by the Remedial Project Managers on July 19, 2000. As a result of this agreement, upgradient groundwater monitoring and influent monitoring associated with the Fuel Spill-12 treatment system will be revised as follows:<br>• Eliminate monitoring of physicochemical parameters (alkalinity, total organic carbon, dissolved organic carbon, total nitrogen, total phosphorus, nitrate, nitrite, ammonia, and orthophosphate) at upgradient wells 90MW0020, 90MW0070, and 90MW0059D. (For the remaining period of performance under DO 0030, six monthly events will be eliminated.)<br>• Add monthly physicochemical samples at the influent port 90PLT01001. (For the remaining period of performance under DO 0030, six monthly events will be added.) | |

Attachments: None

Distribution:



RECEIVED
AUG 31 2000

| Client, Project and Location | Change Notice Project Note | Delivery Order |
|---|---|---|
| AFCEE, MMR Plume Response Program<br>FS-12 SPEIM<br>Otis ANG Base, Massachusetts | Note No.: 0015 | 30<br>Project Number<br>35-U405-03 |

| Item | Remarks | Action Required By |
|---|---|---|

Spence Smith, AFCEE/MMR
Jon Davis, AFCEE/MMR
Rose Forbes, AFCEE/MMR
Marty Aker, AFCEE/MMR
Carter Fahy, AFCEE/MMR
Dave Hill, ARE (c/o IRP)
Robert Lim, EPA
Elliot Jacobs, DEP
Eric Banks, JEG
Lisa Allinger, JEG
Kris Barrett, JEG
Mike Morris, JEG
Mike Goydas, JEG
Mary O'Reilly, JEG
Drew Tingley, JEG
Jen Diaz, JEG
Lonnie Fallin, JEG
Katie Kowalski, JEG
Ron Citterman, JEG
Ken Black, JEG
Kirk Morris, JEG
Document Control, JEG

ENTERED

JE JACOBS ENGINEERING®

Engineers and Constructors

Otis ANG Base, MA

**Document Control Number:**
AFC-J23-35U40503-A4-0016

| Client, Project and Location | Project Note-Change Notice | Delivery Order 30 / Project Number 35-U405-03 |
|---|---|---|
| **AFCEE, MMR Plume Response Program SPEIM Otis ANG Base, Massachusetts** | **Note No.: 0016** | |

| Confirmation of | |
|---|---|
| ☒ Change Notice Project Note-A4 | Date Held: 8/16/00 |
| ☐ | Location: Jacobs MMR Engineering Offices |
| ☐ | Date Issued: 8/17/00 |
| | Recorded By: Mike Morris, JEG |
| Subject: **FS-12 SPEIM Modifications—Additions to In-plume and Breakthrough Monitoring** | Issued By: Lisa Allinger<br>Lisa Allinger<br>Jacobs Project Manager |

Participants (* Denotes Part Time Participation)

| Client | Jacobs/MMR | Jacobs/Oak Ridge Via Conference Call |
|---|---|---|
| Rose Forbes | Mike Morris | |
| Spence Smith | Lisa Allinger | |
| | Mike Goydas | |

| Item | Remarks | Action Required By |
|---|---|---|
| 1. | Detections of EDB in microwells ECMWSNP02S,D have been discussed in project note # AFC-J23-35U40503-A4-0003, *FS-12 SPEIM Modifications—Microwell Sampling—Snake Pond*. One of the actions from this discovery was to expand the monitoring well network for a one-time event as outlined in project note #AFC-J23-3540503-A4-0005, *FS-12 SPEIM Modifications—Monitoring North and East of Snake Pond*.<br><br>The results of the one-time only sampling event showed two groundwater locations where EDB was detected. Monitoring well 90MW0059B had an EDB concentration of 0.016 µg/L from a groundwater sample collected on 2 May 2000. This sample is located upgradient of the microwells and may represent the trailing edge of an area of EDB contamination. Monitoring well 90MW0049 had a detection of 0.020 µg/L from a groundwater sample collected on 2 May 2000. The sample is from deep in the section (approximately –100 ft msl) and could be either part of the leading edge of the EDB contamination in the microwell ECMWSNP02 or could be part of the main FS-12 plume, driven deeper into the silts by the influence of the reinjection wells.<br><br>These data were presented to the Technical Update Meeting on 16 August 2000 in the IRP. The EPA and DEP requested that 90MW0049 be sampled again along with wells 90MP0060A and 90MP0060B which are located downgradient of 90MW0049. JEG has examined the issue and recommends that wells 90MP0059B, 90MW0049, 90MP0060A, and 90MP0060B be added to the monitoring network and sampled semiannually for EDB. | |

| Client, Project and Location | | |
|---|---|---|
| **AFCEE, MMR Plume Response Program SPEIM Otis ANG Base, Massachusetts** | **Change Notice – Project Note**<br>**Note No.: 0016** | **Delivery Order 30**<br>**Project Number 35-U405-03** |

| Item | Remarks | Action Required By |
|---|---|---|
| 2. | A recommendation was made in the *Draft Fuel Spill-12 Treatment System 1999 Annual System Performance and Ecological Impact Monitoring Report.* This recommendation was to sample two in-plume wells, 90MW0024 and 90MW0032, to better understand the dynamics of the plume in the eastern section of plume north of the axial extraction wells and west of the southern extraction fence. Modeling results have indicated this area of the plume has a high uncertainty factor due to a lack of monitoring in this area. A one time sampling event would greatly aid in the further definition of the plume and a needed refinement of the three dimensional groundwater model for FS-12. These two wells should be sampled once for EDB and VOCs. The results of this sampling event will aid in the optimization of the FS-12 monitoring well network and will help in the determination of reduction of sampling locations and frequencies of groundwater monitoring. | |

Attachments: None

Distribution:
Spence Smith, AFCEE/MMR
Jon Davis, AFCEE/MMR
Rose Forbes, AFCEE/MMR
Marty Aker, AFCEE/MMR
Carter Fahy, AFCEE/MMR
David Hill, ARE (c/o IRP)
Eric Banks, JEG
Lisa Allinger, JEG
Kris Barrett, JEG
Mike Goydas, JEG
Les Herring, JEG
Fred Stuart, JEG
Drew Tingley, JEG
Ken Black, JEG
Betty Angell, JEG
Katie Kowalski, JEG
Jen Diaz, JEG
Mike Morris, JEG
Jon Wood, JEG
Lonnie Fallin, JEG
Project Files
Document Control

ENTERED

JACOBS ENGINEERING®

Engineers and Constructors

Otis ANG Base, MA

**Document Control Number:**
AFC-J23-35U40503-P1-0004

| Client, Project and Location | Project Note | Delivery Order 30 |
|---|---|---|
| **AFCEE, MMR Plume Response Program FS-12/SPEIM** | | Project No. **35-U405-03** |
| **Otis ANG Base, Massachusetts** | **Note No.: 0004** | |

| Confirmation of | |
|---|---|
| ☐ Project Staff Meeting-P1<br>☐ Client Meeting-P4<br>☐ Readiness Review | Date Held<br>Location<br>Date Issued 10-11-00<br>Recorded By Jennifer Diaz |
| Subject<br>**Change in Location Identifier at FS-12** | Issued By Lisa Allinger<br>L. All<br>Jacobs Project Manager |

Participants (* Denotes Part Time Participation)

| Client | Jacobs/MMR | Jacobs/Oak Ridge<br>Via Conference Call |
|---|---|---|
| Rose Forbes | Jennifer Diaz<br>Michelle Leab | |

| Item | Remarks | Action Required By |
|---|---|---|
| 1 | Piezometer 90P0001C has also been referred to 90PZ01C01 at FS-12. In order to avoid confusion, a new location identifier was assigned for this piezometer so it would correspond to the adjacent multipoint wells. The piezometer will be renamed as 90PZ1-C1. Previously collected information associated with the piezometer will be assigned with the new location identifier. The old location identifiers will be marked for deletion in the database and all upcoming monitoring and reports will use the new location identifier. | |
| 2 | A request to field services will be made to place an identification tag with new location identifier on the piezometer. | |

Attachments:

None

Distribution:

Spence Smith, AFCEE/MMR
Rose Forbes, AFCEE/MMR
Marty Aker, AFCEE/MMR
Mike Minior, AFCEE/MMR
David Jacobson, ARE (c/o IRP)
Elliot Jacobs, DEP
Bob Lim, EPA
Lisa Allinger, JEG
Doug Hodge, JEG
Mike Goydas, JEG
Ken Black, JEG
Drew Tingley, JST
Mike Morris, JEG
Jon Wood, JEG
Lonnie Fallin, JEG
Michelle Leab, JEG
John Guay, JST
Rebecca Cubellis, JST
James Donaldson, JEG
Dave Ward, JEG
Paul Clement, JEG
Katie Kowalski, JEG
Jen Diaz, JEG
Doug Coppi, JEG
Jim Defenderfer, JEG
Brian Koch, JEG
Document Control, JEG

RECEIV

JACOBS ENGINEERING
Engineers and Constructors
Otis ANG Base, MA

ENTERED

**Document Control Number:**
AFC-J23-35U40503-A4-0017

| Client, Project and Location | Project Note- Change Notice | Delivery Order 30 |
|---|---|---|
| **AFCEE, MMR Plume Response Program SPEIM Otis ANG Base, Massachusetts** | | **Project Number 35-U405-03** |
| | **Note No.: 0017** | |

| Confirmation of | |
|---|---|
| ☒ Change Notice Project Note-A4<br>☐<br>☐ | Date Held: 8/24/00<br>Location: Jacobs MMR Engineering Offices<br>Date Issued: 10/11/00<br>Recorded By: Mike Morris, JEG |
| Subject<br>**FS-12 SPEIM Modifications— Addition to Source Area Monitoring** | Issued By: Lisa Allinger<br>Jacobs Project Manager |

Participants (* Denotes Part Time Participation)

| Client | Jacobs/MMR | Jacobs/Oak Ridge<br>Via Conference Call |
|---|---|---|
| Rose Forbes | Mike Morris | |
| Spence Smith | Lisa Allinger | |
| | Mike Goydas | |

| Item | Remarks | Action Required By |
|---|---|---|
| 1. | A recommendation was made in the *Draft Fuel Spill-12 Treatment System 1999 Annual System Performance and Ecological Impact Monitoring Report* (June 2000). This recommendation was to sample one source area well, 90MW0019, to better define the plume boundary in the northwestern section of plume. Modeling results have indicated this area of the plume has a high uncertainty factor due to sparse monitoring in this area. A one time sampling event is necessary to further define the plume and refine the three dimensional groundwater model for FS-12. This well should be sampled once for EDB and VOCs in September 2000. The results of this sampling event will aid in the optimization of the FS-12 monitoring well network to reduce the number of sampling locations and frequencies of groundwater monitoring.<br><br>Monitoring wells 90MW0082A, 90MW0082B, and 90MW0017 were recommended for sampling in the *Draft Fuel Spill-12 Treatment System 1999 Annual System Performance and Ecological Impact Monitoring Report* (June 2000). These wells are located near extraction wells that were sampled in May 2000. Therefore, these wells would provide redundant information and do not need to be sampled as recommended. | |
| | | |

Attachments: None



RECEIVE

| Client, Project and Location<br><br>**AFCEE, MMR Plume Response Program**<br>**SPEIM**<br>**Otis ANG Base, Massachusetts** | **Change Notice - Project Note**<br><br>**Note No.: 0017** | **Delivery Order**<br>**30**<br><br>**Project Number**<br>**35-U405-03** |
|---|---|---|

| Item | Remarks | Action Required By |
|---|---|---|

Distribution:

Spence Smith, AFCEE/MMR
Jon Davis, AFCEE/MMR
Rose Forbes, AFCEE/MMR
Marty Aker, AFCEE/MMR
Mike Minior, AFCEE/MMR
David Jacobson, ARE (c/o IRP)

Eric Banks, JEG
Lisa Allinger, JEG
Doug Hodge, JEG
Mike Goydas, JEG
Ken Klein , JEG
Fred Stuart, JEG
Drew Tingley, JEG
Ken Black, JEG

Mike Morris, JEG
Jon Wood, JEG
Lonnie Fallin, JEG
KatieKowalski,JEG
Jen Diaz, JEG
Betty Angell, JEG
Document Control, JEG

JACOBS ENGINEERING®
Engineers and Constructors
Otis ANG Base, MA

**Document Control Number:**
AFC-J23-35U40503-A4-0018

| Client, Project and Location | Project Note- Change Notice | Delivery Order 30 |
|---|---|---|
| **AFCEE, MMR Plume Response Program SPEIM Otis ANG Base, Massachusetts** | **Note No.: 0018** | Project Number **35-U405-03** |

| Confirmation of | |
|---|---|
| ☒ Change Notice Project Note-A4<br>☐<br>☐ | Date Held: 8/24/00<br>Location: Jacobs MMR Engineering Offices<br>Date Issued: 10/11/00<br>Recorded By: Mike Morris, JEG |
| Subject<br>**FS-12 SPEIM Modifications— Survey of Piezometers** | Issued By: Lisa Allinger<br>Jacobs Project Manager |

Participants (* Denotes Part Time Participation)

| Client | Jacobs/MMR | Jacobs/Oak Ridge<br>Via Conference Call |
|---|---|---|
| Rose Forbes | Mike Morris | |
| Spence Smith | Lisa Allinger | |
| | Mike Goydas | |

| Item | Remarks | Action Required By |
|---|---|---|
| 1. | Water level monitoring for the FS-12 SPEIM program requires accurate information regarding vertical and horizontal control. Two groundwater wells, 90PZ01C01 (also known as 90P0001C) and 96MW0012 currently have no ground surface elevation or top of casing elevation . 90PZ01C01 is located on the northeastern shoreline of Snake Pond and is a hydraulic monitoring location. 96MW0012 is located downgradient of the southern extraction fence and is used as a breakthrough monitoring well. These two groundwater wells will be surveyed for top of casing and ground surface elevations. | |
| | | |

Attachments: None

Distribution:
Spence Smith, AFCEE/MMR
Jon Davis, AFCEE/MMR
Rose Forbes, AFCEE/MMR
Marty Aker, AFCEE/MMR
Mike Minior, AFCEE/MMR
David Jacobson, ARE (c/o IRP)

Eric Banks, JEG
Lisa Allinger, JEG
Doug Hodge, JEG
Mike Goydas, JEG
Ken Klein, JEG
Fred Stuart, JEG
Drew Tingley, JEG
Ken Black, JEG

Mike Morris, JEG
Jon Wood, JEG
Lonnie Fallin, JEG
KatieKowalski,JEG
Jen Diaz, JEG
Betty Angell, JEG
Document Control, JEG

**JACOBS ENGINEERING**

**Engineers and Constructors**

Otis ANG Base, MA

**Document Control Number:**
AFC-J23-35U40503-A4-0019

| Client, Project and Location | Project Note- Change Notice | Delivery Order 30 |
|---|---|---|
| **AFCEE, MMR Plume Response Program SPEIM Otis ANG Base, Massachusetts** | **Note No.: 0019** | **Project Number 35-U405-03** |

| Confirmation of | |
|---|---|
| ☒ Change Notice Project Note-A4<br>☐<br>☐ | Date Held: 8/30/00<br>Location: Jacobs MMR Engineering Offices<br>Date Issued: 10/11/00<br>Recorded By: Mike Morris, JEG |
| Subject<br>**FS-12 SPEIM Modifications— EDB Analysis of Microwells** | Issued By: Lisa Allinger<br>Jacobs Project Manager |

Participants (* Denotes Part Time Participation)

| Client | Jacobs/MMR | Jacobs/Oak Ridge<br>Via Conference Call |
|---|---|---|
| Rose Forbes | Mike Morris | |
| Spence Smith | Lisa Allinger | |
| | Mike Goydas | |

| Item | Remarks | Action Required By |
|---|---|---|
| 1. | Microwells in Snake Pond are sampled quarterly and analyzed for EDB and VOCs. Microwells ECMWSNP02S, ECMWSNP02D, ECMWSNP03S, and ECMWSNP03D are scheduled to be sampled in September 2000. These samples would be analyzed at an off-site laboratory.<br><br>A JPAT meeting is scheduled for 13 September 2000 and the EDB results from the September 2000 round are critical. It is proposed that four groundwater samples, one from each microwell sampled in September 2000, be analyzed for EDB at the on-site laboratory. The on-site laboratory can guarantee a 24 hour turnaround and thus have results in time for the September 2000 JPAT presentation. | |
| | | |

Attachments: None

Distribution:

Spence Smith, AFCEE/MMR
Jon Davis, AFCEE/MMR
Rose Forbes, AFCEE/MMR
Marty Aker, AFCEE/MMR
Mike Minior, AFCEE/MMR
David Hill, ARE (c/o IRP)

Eric Banks, JEG
Lisa Allinger, JEG
Doug Hodge, JEG
Mike Goydas, JEG
Ken Klein, JEG
Fred Stuart, JEG
Drew Tingley, JEG
Ken Black, JEG

Mike Morris, JEG
Jon Wood, JEG
Lonnie Fallin, JEG
Katie Kowalski, JEG
Jen Diaz, JEG
Betty Angell, JEG
Document Control, JEG

JACOBS ENGINEERING
Engineers and Constructors
Otis ANG Base, MA

ENTERED

Document Control Number:
AFC-J23-35U40503-P1-0005

| Client, Project and Location | Project Note | Delivery Order 30 |
|---|---|---|
| **AFCEE, MMR Plume Response Program FS-12/SPEIM** | | Project No. **35-U405-03** |
| **Otis ANG Base, Massachusetts** | **Note No.: 0005** | |

| Confirmation of | |
|---|---|
| ☒ Project Staff Meeting-P1 | Date Held |
| ☐ Client Meeting-P4 | Location |
| ☐ Readiness Review | Date Issued 10-02-00 |
| | Recorded By Mike Morris |
| Subject **Recommendations for Modified Plume Sampling at FS-12** | Issued By Lisa Allinger<br>Jacobs Project Manager |

Participants (* Denotes Part Time Participation)

| Client | Jacobs/MMR | Jacobs/Oak Ridge Via Conference Call |
|---|---|---|
| Rose Forbes | Mike Morris | |
| Spence Smith | Lisa Allinger | Others |

| Item | Remarks | Action Required By |
|---|---|---|
| 1 | Due to detections of EDB in areas outside the originally drawn FS-12 plume, a series of actions are proposed to help characterize the plume. This modified plume is located under the northeast portion of Snake Pond to the west of reinjection wells 5 through 9 as presented in Figure 1-1 of the *FS-12 Quarterly System Performance and Ecological Impact Monitoring Report, April – June 2000.* | |
| 2 | The following recommendations are presented to address the plume characterization at FS-12:<br><br>Sample one time only for EDB in November or December 2000. Extraction wells (90EW0001 through 90EW0003) will also be analyzed for VOCs. Samples will be analyzed within 24 hours of submittal to on-site laboratory.<br><br>90EW0001 (two depths, –15 and –35 ft msl)<br>90EW0002 (two depths, -15 and –35 ft msl)<br>90EW0003 (two depths, -17 and –37 ft msl)<br>90MP0059B<br>90MW0049<br>90MP0060A<br>90MP0060B<br>90PZ1B1<br>90RIW0009 (two depths, -11 and –31 ft msl)<br><br>The future frequency of sampling for these wells will be determined based on data from the December 2000 sampling event. In addition, the microwells ECMWSNP02S,D and | |




RECEIV

| Client, Project and Location<br>**AFCEE, MMR Plume Response Program**<br>**FS-12/SPEIM**<br><br>**Otis ANG Base, Massachusetts** | **Project Note**<br><br>**Note No.: 005** | Project No.<br><br>Project No.<br>**35-U405-03** |
|---|---|---|

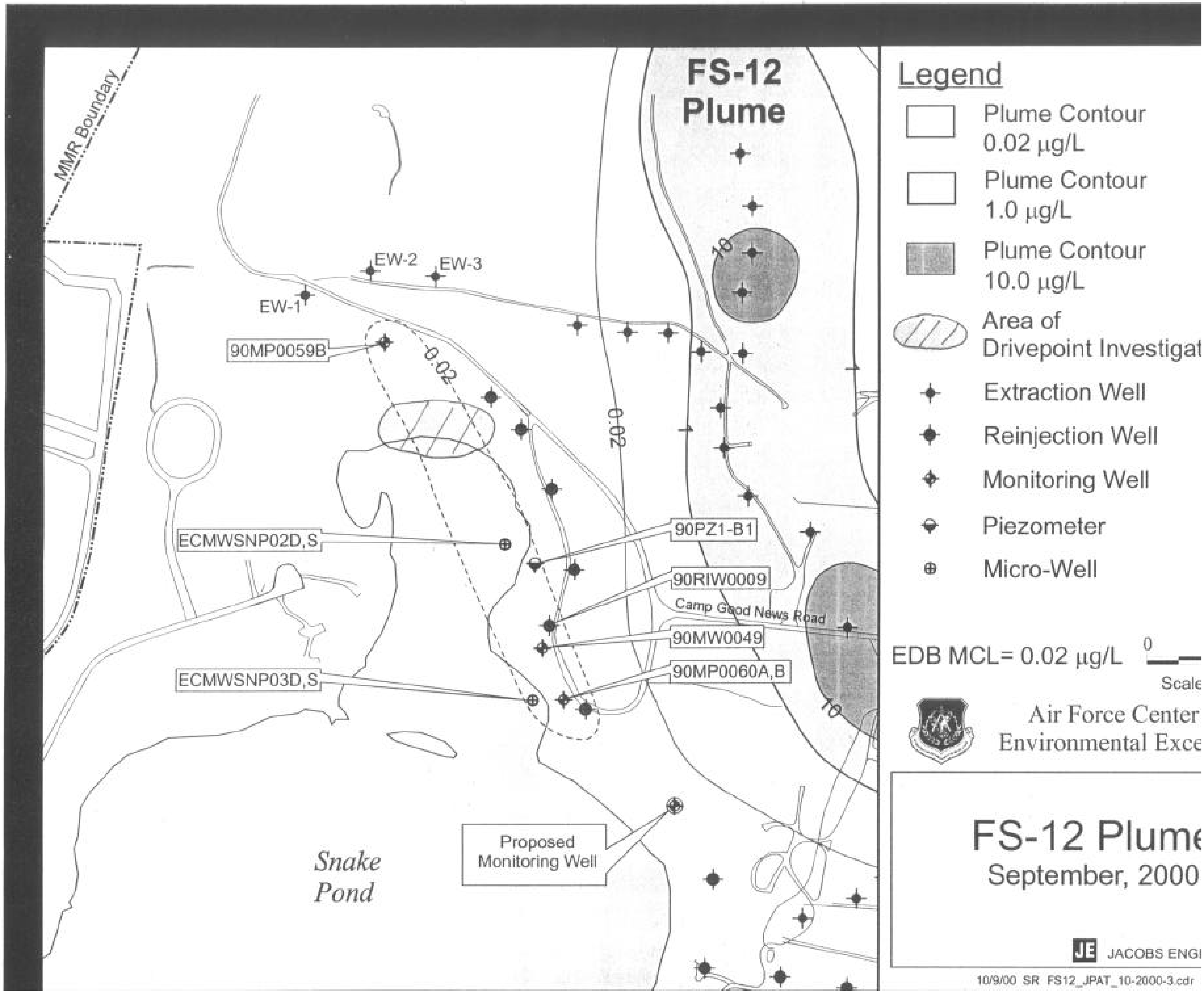
| Item | Remarks | Action Required By |
|---|---|---|
| | ECMWSNP03S,D will be sampled concurrently as part of the quarterly sampling event. | |
| 3. | Install one new monitoring well southwest of 90MW0050 near the eastern edge of Snake Pond. This well is necessary to track the southeast movement of the plume along the eastern edge of Snake Pond. This well is in the modeled pathway of contamination detected in monitoring wells 90MP0060A and 90MW0049, and would also provide more confidence in monitoring the southwest corner of the main FS-12 plume. This monitoring well will be approximately 180 to 200 ft in depth below ground surface based on the depths of EDB detections in 90MP0060A and 90MW0049. Two screens are planned to be set for this well based on screening level data from the borings. Groundwater screening data will be collected at 20 foot intervals for the first 60 feet of the water table and at 10 ft intervals thereafter. Samples will be analyzed for EDB. Samples will be analyzed at the on-site lab and analytical data results will be available within 24 hours. Screens will be set in this well based on screening data. The first five groundwater screening samples will also be split with USGS for isotopic analysis. | |
| 4. | Install up to 3 drive points at the north end of Snake Pond to further define the western plume boundary as it passes beneath Snake pond. The drive points will be bored to approximately 150 ft. bgs and groundwater will be screened at 10 ft. intervals beginning at the water table for EDB and VOCs. Samples will be analyzed at the on-site lab and analytical data results will be available within 24 hours. After completion of the drive points, a screen will be set in each borehole for future sampling. | |
| 5. | Efforts will be made to clear and sample 90MW0004 one time for EDB. Samples will be analyzed at the on-site lab and analytical data results will be available within 24 hours. | |
| 6. | Drive points 90SNP001 and 90SNP002 will be discontinued. This sampling was completed in August 2000 according to Project Note AFC-J23-35U40503-A4-0010 (FS-12 SPEIM Modifications—Drive Points in Snake Pond). Surface water sampling conducted by the Sandwich Board of Health will also be discontinued at this time. Re-evaluation will be made prior to start of the next recreational season. | |
| 7. | Concurrence with the above changes/recommendations is represented by the signatures below:<br><br>Rose H Forbes 11 Oct 00 — AFCEE Project Manager<br>10/11/00 — EPA Representative<br>10/11/00 — Jacobs Project Manager<br>10/11/00 — DEP Representative | |

| Client, Project and Location<br>**AFCEE, MMR Plume Response Program**<br>**FS-12/SPEIM**<br><br>**Otis ANG Base, Massachusetts** | **Project Note**<br><br>**Note No.: 005** | Project No.<br><br>Project No.<br>**35-U405-03** |
|---|---|---|

| Item | Remarks | Action Required By |
|---|---|---|

Attachments: Figure--FS-12 Plume September, 2000

Distribution:
Spence Smith, AFCEE/MMR
Rose Forbes, AFCEE/MMR
Marty Aker, AFCEE/MMR
Mike Minior, AFCEE/MMR
Jon Davis, AFCEE, MMR
David Jacobson, ARE (c/o IRP)
Leonard Pinaud, DEP
Elliott Jacobs, DEP
Paul Marchessault, EPA
Mike Jasinski, EPA
Bob Lim, EPA
Eric Banks, JEG
Kris Barrett, JEG
Doug Hodge, JEG
Lisa Allinger, JEG
Mike Goydas, JEG
Mike Morris, JEG
Ken Gaynor, JEG
Jon Wood, JEG
Jen Diaz, JEG
Lonnie Fallin, JEG
Drew Tingley, JEG
Dave Ward, JEG
Ken Black, JEG
Jim Defenderfer, JEG
Paul Clement, JEG
Katie Kowalski,JEG
Document Control, JEG



FS-12
Plume
MMR Boundary
EW-1
EW-2
EW-3
90MP0059B
0.02
0.02
10
10
ECMWSNP02D,S
90PZ1-B1
90RIW0009
Camp Good News Road
90MW0049
ECMWSNP03D,S
90MP0060A,B
Proposed
Monitoring Well
Snake
Pond
Legend
Plume Contour
0.02 µg/L
Plume Contour
1.0 µg/L
Plume Contour
10.0 µg/L
Area of
Drivepoint Investigat
Extraction Well
Reinjection Well
Monitoring Well
Piezometer
Micro-Well
EDB MCL= 0.02 µg/L
0
Scale
Air Force Center
Environmental Exce
FS-12 Plume
September, 2000
JACOBS ENGI
10/9/00 SR FS12_JPAT_10-2000-3.cdr

ENTERED

JE JACOBS ENGINEERING

Otis ANG Base, MA

Document Control Number:
AFC-J23-35U40503-P1-0007

| Client, Project and Location | Project Note | Delivery Order |
|---|---|---|
| AFCEE, MMR Plume Response Program FS-12/SPEIM<br>Otis ANG Base, Massachusetts | Note No.: 0007 | 30<br>Project No.<br>35-U405-03 |

| Confirmation of | |
|---|---|
| ☒ Project Note-P1<br>☐ Client Meeting-P4<br>☐ Readiness Review | Date Held<br>Location<br>Date Issued 10-19-00<br>Recorded By Mike Morris |
| Subject<br>**FS-12—Recommendations for Installation of Mobile GAC Treatment.** | Issued By Lisa Alliger<br>Jacobs Project Manager |

Participants (* Denotes Part Time Participation)

| Client | Jacobs/MMR | Jacobs/Oak Ridge<br>Via Conference Call | Others |
|---|---|---|---|
| Rose Forbes | Mike Morris | | |

| Item | Remarks | Action Required By |
|---|---|---|
| 1 | This project note documents a recommendation for placement of a temporary, mobile granular activated carbon (GAC) system to address and remediate groundwater contamination believed to be under Snake Pond, southwest of the present FS-12 plume. This groundwater contamination and the monitoring associated with it are addressed in project note #AFC-J23-35U40503-P1-0005 (Recommendations for Modified Plume Sampling at FS-12). Sampling and analysis conducted as a result of project note #AFC-J23-35U40503-P1-0005 will help to refine proposed actions for addressing the plume. The present proposed action is based on current knowledge regarding the nature and extent of the plume (see attached figures). | |
| 2 | It is proposed that a portable GAC unit be installed on the property of Camp Good News in the vicinity of reinjection well 90RIW0009. Reinjection well 90RIW0009 would be converted into a temporary extraction well to pump EDB contaminated groundwater. The proposed pumping rate is approximately 100 gpm with consideration of ecological criteria guidelines for surface water levels. Treated water would be pumped back into the reinjection header and discharged into the aquifer.<br>There are several issues that need to be addressed before a system can be implemented.<br>• Structure: The system must be capable of withstanding freezing temperatures. The | |

JE

| Client, Project and Location<br>AFCEE, MMR Plume Response Program<br>FS-12/SPEIM<br>Otis ANG Base, Massachusetts | Project Note<br>Note No.: 007 | Project No.<br>35-U405-03 |
|---|---|---|

| Item | Remarks | Action Required By |
|---|---|---|
| | header.<br>• Modifications to vault, reinjection well, control system will be required.<br>The advantages of using a mobile GAC system include low costs and rapid response time. The installation of this system is planned for start-up on June 1, 2001. | |
| 3. | Concurrence with the above recommendations is represented by the signatures below:<br>Robert M. Gill — AFCEE Project Manager<br>Paul Marchessault 10/23/00 — EPA Representative<br>DEP Representative | |

Attachments:

Figures: 1) FS-12 Plume, September, 2000
2) Cross-Section A-A' at FS-12

Distribution:
Spence Smith, AFCEE/MMR
Rose Forbes, AFCEE/MMR
Marty Aker, AFCEE/MMR
Mike Minior, AFCEE/MMR
David Jacobson, ARE (c/o IRP)
Leonard Pinaud, DEP
Elliott Jacobs, DEP
Paul Marchessault, EPA
Mike Jasinski, EPA
Bob Lim, EPA
Eric Banks, JEG
Doug Hodge, JEG
Lisa Allinger, JEG
Mike Goydas, JEG
Drew Tingley, JST
Mike Morris, JEG
Steve Witzmann, JEG
Larry Ebel, JEG
Document Control, JEG

JE

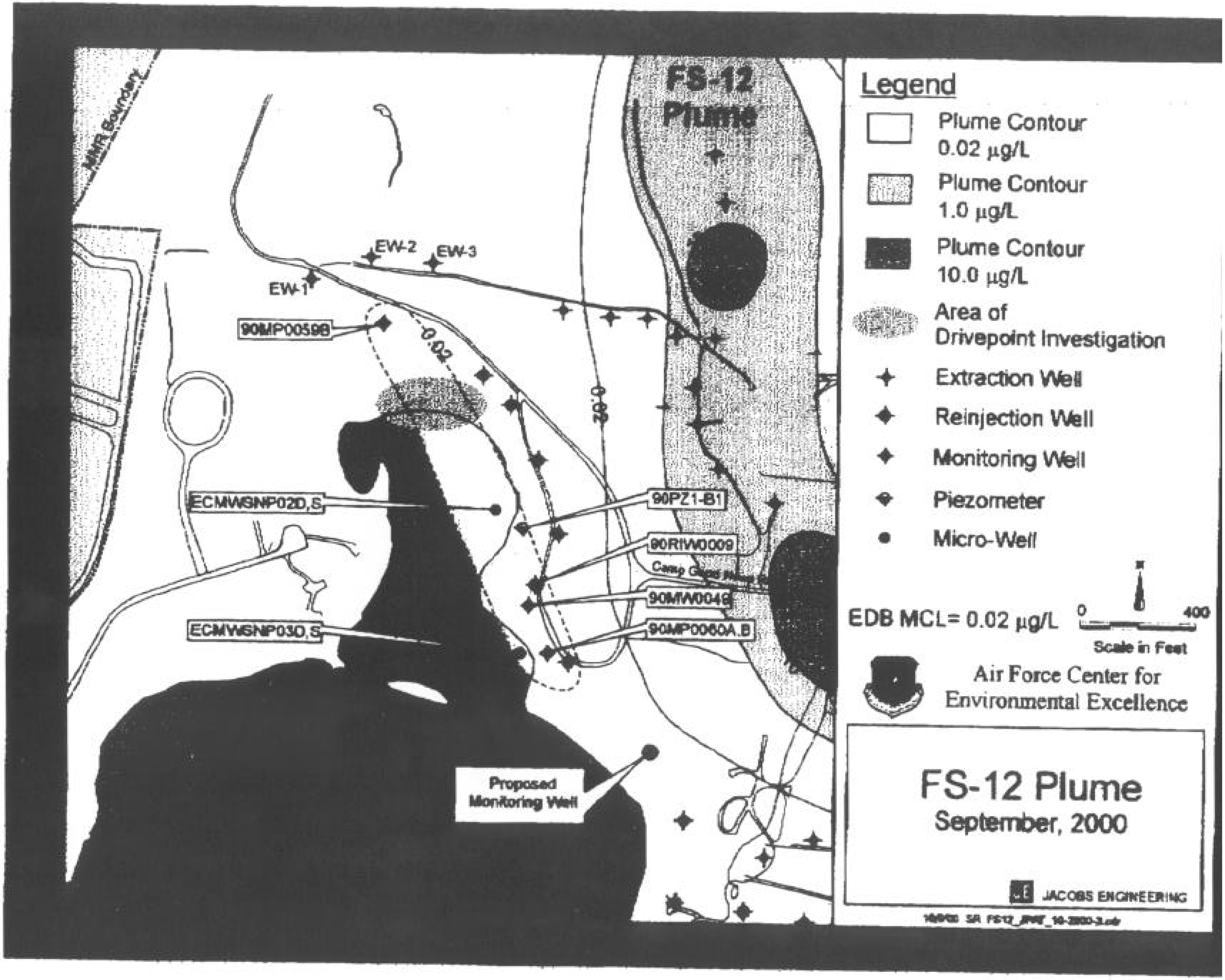
| Client, Project and Location<br>AFCEE, MMR Plume Response Program<br>FS-12/SPEIM<br>Otis ANG Base, Massachusetts | Project Note<br>Note No.: 007 | Project No.<br>Project No.<br>35-U405-03 |
|---|---|---|

| Item | Remarks | Action Required By |
|---|---|---|
| | header.<br>• Modifications to vault, reinjection well, control system will be required.<br>The advantages of using a mobile GAC system include low costs and rapid response time. The installation of this system is planned for start-up on June 1, 2001. | |
| 3. | Concurrence with the above recommendations is represented by the signatures below:<br>[signature] AFCEE Project Manager<br>________ EPA Representative<br>[signature] 10/23/00 DEP Representative | |

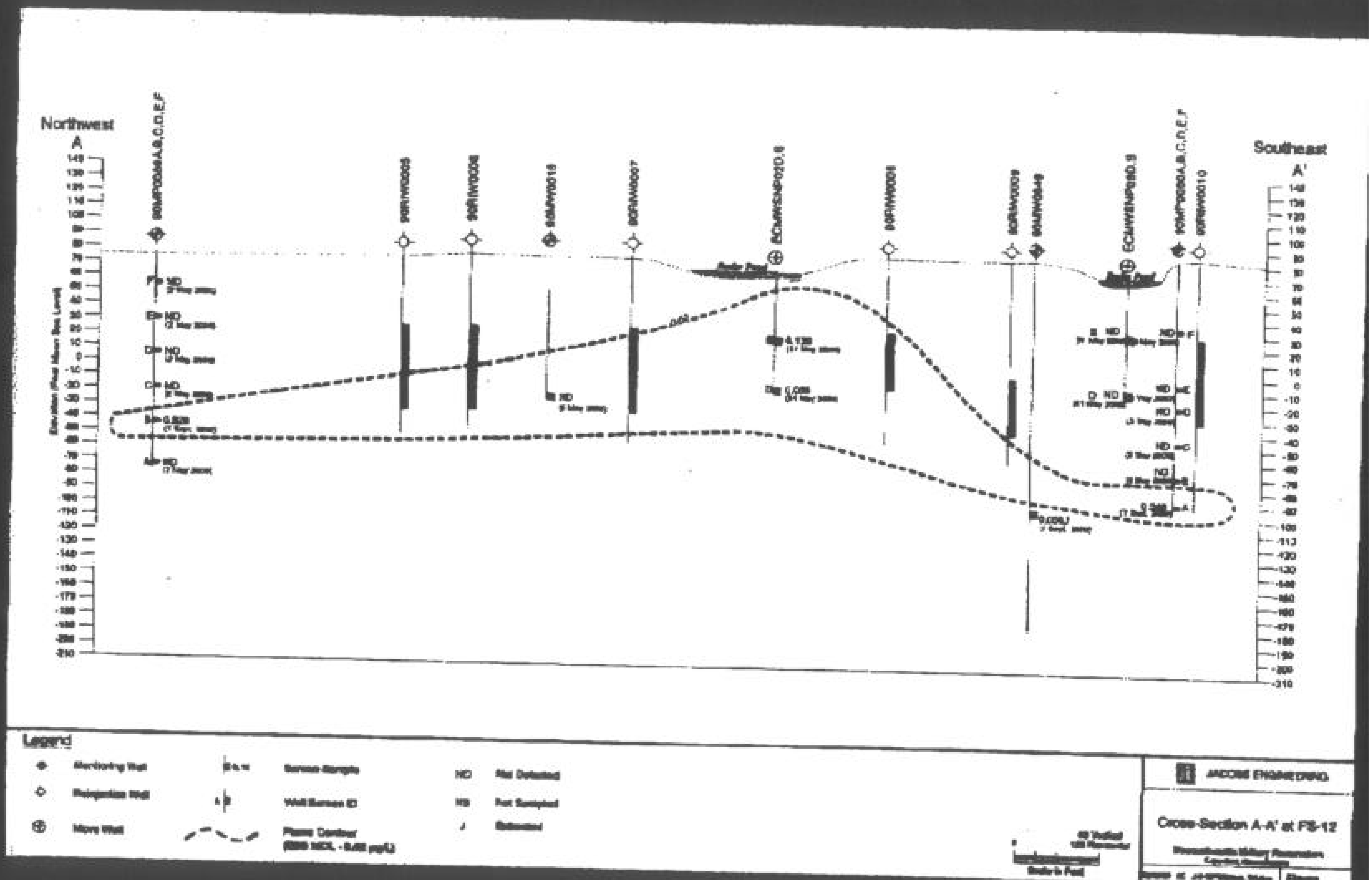
Attachments:

Figures: 1) FS-12 Plume, September, 2000
2) Cross-Section A-A' at FS-12

Distribution:
Spence Smith, AFCEE/MMR
Rose Forbes, AFCEE/MMR
Marty Aker, AFCEE/MMR
Mike Minior, AFCEE/MMR
David Jacobson, ARE (c/o IRP)
Leonard Pinaud, DEP
Elliott Jacobs, DEP
Paul Marchessault, EPA
Mike Jasinski, EPA
Bob Lim, EPA
Eric Banks, JEG
Doug Hodge, JEG
Lisa Allinger, JEG
Mike Goydas, JEG
Drew Tingley, J&T
Mike Morris, JEG
Steve Witzmann, JEG
Larry Eitel, JEG
Document Control, JEG



NMR Boundary
FS-12 Plume
EW-1
EW-2
EW-3
90MP0059B
0.02
ECMWSNP02D,S
ECMWSNP03D,S
90PZ1-B1
90RIW0009
90MW0048
90MP0060A,B
Proposed Monitoring Well
Legend
Plume Contour 0.02 µg/L
Plume Contour 1.0 µg/L
Plume Contour 10.0 µg/L
Area of Drivepoint Investigation
Extraction Well
Reinjection Well
Monitoring Well
Piezometer
Micro-Well
EDB MCL= 0.02 µg/L
0
400
Scale in Feet
Air Force Center for Environmental Excellence
FS-12 Plume
September, 2000
JACOBS ENGINEERING



Northwest
A
Southeast
A'
Legend
Monitoring Well
Micro Well
Well Screen ID
ND
Not Detected
NS
Not Sampled
JACOBS ENGINEERING
Cross-Section A-A' at FS-12

JACOBS ENGINEERING

Engineers and Constructors

Otis ANG Base, MA

ENTERED

**Document Control Number:**
AFC-J23-35U40503-A4-0021

| Client, Project and Location | Project Note- Change Notice | Delivery Order 30 |
|---|---|---|
| **AFCEE, MMR Plume Response Program FS-12/SPEIM** | | Project No. **35-U405-03** |
| **Otis ANG Base, Massachusetts** | **Note No.: 0021** | |

| Confirmation of | |
|---|---|
| ☒ Change Notice Project Note-A4 | Date Held |
| ☐ | Location |
| ☐ | Date Issued 10-26-00 |
| | Recorded By Mike Morris |
| Subject | Issued By Lisa Allinger |
| **FS-12 SPEIM Modifications— Changes to Change Notice AFC-J23-35U40503-A4-0020** | Jacobs Project Manager |

Participants (* Denotes Part Time Participation)

| Client | Jacobs/MMR | Jacobs/Oak Ridge Via Conference Call |
|---|---|---|
| Rose Forbes | Mike Morris | |
| Spence Smith | Lisa Allinger | Others |

| Item | Remarks | Action Required By |
|---|---|---|
| 1 | This change notice amends change notice AFC-J23-35U40503-A4-0020 (FS-12 SPEIM Modifications—Additional Plume Sampling and Well Maintenance at FS-12) item #4. | |
| 2. | Item #4 of the original note was to "Install up to three drive points at the north end of Snake Pond to further define the western plume boundary as it passes beneath Snake pond. The drive points will be bored to approximately 150 ft. bgs and groundwater will be screened for EDB and VOCs at 10 ft. intervals beginning at the water table for EDB and VOCs. Samples will be analyzed at the on-site lab and analytical data results will be available within 24 hours. After completion of the drive points, a screen will be set in each borehole for future sampling."<br><br>It was determined that drive point sampling in this area may not be feasible due to the difficulty in reaching 150 ft bgs. This depth is based on the total depth of well 90MP0059 of 152 ft. Well 90MP0059B had a detection of EDB that exceeds MMCLs and the drive points north of Snake Pond were to help delineate this plume. Drive points should be eliminated in place of auger borings that can easily reach this required depth. The auger holes will be bored to approximately 150 ft bgs and groundwater will be screened for EDB and VOCs at 10 ft. intervals beginning at the water table for EDB and VOCs. Samples will be analyzed at the on-site lab and analytical results will be available within 24 hours. A monitoring well with one screen will be set in each auger borehole for future sampling. | |

Attachments: None

| Client, Project and Location<br>**AFCEE, MMR Plume Response Program<br>FS-12/SPEIM**<br><br>**Otis ANG Base, Massachusetts** | **Project Note**<br><br>**Note No.: 0021** | Project No.<br><br>Project No.<br>**35-U405-03** |
|---|---|---|

| Item | Remarks | Action Required By |
|---|---|---|

Distribution:

Spence Smith, AFCEE/MMR
Rose Forbes, AFCEE/MMR
Marty Aker, AFCEE/MMR
Mike Minior, AFCEE/MMR
Jon Davis, AFCEE, MMR
David Jacobson, ARE (c/o IRP)
Eric Banks, JEG

Doug Hodge, JEG
Lisa Allinger, JEG
Mike Goydas, JEG
Mike Morris, JEG
Ken Gaynor, JEG
Chris Hickman, JEG
Jon Wood, JEG
Jen Diaz, JEG
Lonnie Fallin, JEG
Drew Tingley, JEG
Dave Ward, JEG

Ken Black, JEG
Jim Defenderfer, JEG
Paul Clement, JEG
Katie Kowalski,JEG
Document Control, JEG

ENTERED

JACOBS ENGINEERING®

Engineers and Constructors

Otis ANG Base, MA

**Document Control Number:**
AFC-J23-35U40503-A4-0022

| Client, Project and Location | Project Note- Change Notice | Delivery Order 30 |
|---|---|---|
| **AFCEE, MMR Plume Response Program FS-12/SPEIM** | | Project No. **35-U405-03** |
| **Otis ANG Base, Massachusetts** | **Note No.: 0022** | |

| Confirmation of | |
|---|---|
| ☒ Change Notice Project Note-A4<br>☐<br>☐ | Date Held<br>Location<br>Date Issued 7 November 2000<br>Recorded By Mike Morris |
| Subject<br>**FS-12 SPEIM Modifications—Monitoring of well 90MW0058** | Issued By Lisa Allinger<br>Jacobs Project Manager |

Participants (* Denotes Part Time Participation)

| Client | Jacobs/MMR | Jacobs/Oak Ridge<br>Via Conference Call |
|---|---|---|
| Rose Forbes | Mike Morris | |
| Spence Smith | Lisa Allinger | Others |

| Item | Remarks | Action Required By |
|---|---|---|
| 1 | Monitoring well 90MW0100A,B was recently installed and is located near the east shore of Snake Pond. Groundwater screening of this new monitoring well showed elevated concentrations of EDB from approximately −20 ft msl to approximately −60 ft msl. Monitoring well 90MW0058 is located downgradient near the east shore of Snake Pond and is screened from −49.20 to −54.20 ft msl. This monitoring well will assist in defining the distribution of EDB in this area. It is proposed that this monitoring well be sampled once for EDB. The on-site laboratory will be used to analyze this sample. Additionally, a groundwater sample will be collected for isotopic analysis to try and determine the source of this water (i.e. from treated reinjected water, aquifer groundwater, etc.). The isotopic analysis will be conducted by the United States Geological Survey. | |

Attachments: None

Distribution:
Spence Smith, AFCEE/MMR
Rose Forbes, AFCEE/MMR
Marty Aker, AFCEE/MMR
Mike Minior, AFCEE/MMR
Jon Davis, AFCEE, MMR
David Jacobson, ARE (c/o IRP)
Eric Banks, JEG
Doug Hodge, JEG
Lisa Allinger, JEG
Mike Goydas, JEG
Mike Morris, JEG
Ken Gaynor, JEG
Chris Hickman, JEG
Jon Wood, JEG
Jen Diaz, JEG
Lonnie Fallin, JEG
Drew Tingley, JEG
Dave Ward, JEG
Ken Black, JEG
Jim Defenderfer, JEG
Paul Clement, JEG
Katie Kowalski, JEG
Document Control, JEG



RECEIVED

ENTERED

**JACOBS ENGINEERING**
Engineers and Constructors
Otis ANG Base, MA

**Document Control Number:**
AFC-J23-35U40503-A4-0023

| Client, Project and Location | Project Note- Change Notice | Delivery Order 30 |
|---|---|---|
| **AFCEE, MMR Plume Response Program FS-12/SPEIM Otis ANG Base, Massachusetts** | **Note No.: 0023** | Project No. **35-U405-03** |

| Confirmation of | |
|---|---|
| ☒ Change Notice Project Note-A4 <br> ☐ <br> ☐ | Date Held <br> Location <br> Date Issued 7 November 2000 <br> Recorded By Mike Morris |
| Subject <br> **FS-12 SPEIM Modifications—Change in Location of Monitoring Well 90MW0103A** | Issued By Lisa Allinger <br> Jacobs Project Manager |

Participants (* Denotes Part Time Participation)

| Client | Jacobs/MMR | Jacobs/Oak Ridge Via Conference Call |
|---|---|---|
| Rose Forbes | Mike Morris | |
| Spence Smith | Lisa Allinger | Others |

| Item | Remarks | Action Required By |
|---|---|---|
| 1 | This change notice amends change notice AFC-J23-35U40503-A4-0021 (FS-12 SPEIM Modifications—Changes to Change Notice AFC-J23-35U40503-A4-0021) item #2. | |
| 2. | Due to the detections of EDB during the groundwater screening in monitoring well 90MW0100A located on the east shore of Snake Pond, it is necessary to place a monitoring well downgradient and south of this location to determine the southwestern extent of EDB contamination. Monitoring well 90MW0103A, originally planned for the north shore of Snake Pond, will be placed approximately 250 feet south of monitoring wells 90MW0100A,B. <br><br> Based upon the groundwater screening data at monitoring well 90MW0100 and contaminant distribution, this monitoring well will be drilled to 200 feet below ground surface. Two well screens will be set based on screening level data from the boring. Groundwater screening data will be collected at 20 foot intervals for the first 60 feet below the water table and at 10 foot intervals thereafter. Groundwater samples will be analyzed for EDB. Groundwater samples will be analyzed at the on-site lab and the analytical results will be available within 24 hours. Additionally, a groundwater sample will be collected for isotopic analysis whenever an EDB sample is collected. The isotopic analysis will be conducted by the United States Geological Survey. <br><br> Since this monitoring well is being relocated, additional planking will be required (that was not required at its original location) in order to prevent any damage to ecosystems in this new location. | |

JE

<table>
<tr><td>Client, Project and Location<br>**AFCEE, MMR Plume Response Program<br>FS-12/SPEIM<br>Otis ANG Base, Massachusetts**</td><td># Project Note<br>**Note No.: 0023**</td><td>Project No.<br>Project No.<br>**35-U405-03**</td></tr>
</table>

| Item | Remarks | Action Required By |
|---|---|---|

Attachments: None

Distribution:

Spence Smith, AFCEE/MMR
Rose Forbes, AFCEE/MMR
Marty Aker, AFCEE/MMR
Mike Minior, AFCEE/MMR
Jon Davis, AFCEE, MMR
David Jacobson, ARE (c/o IRP)
Eric Banks, JEG

Doug Hodge, JEG
Lisa Allinger, JEG
Mike Goydas, JEG
Mike Morris, JEG
Ken Gaynor, JEG
Chris Hickman, JEG
Jon Wood, JEG
Jen Diaz, JEG
Lonnie Fallin, JEG
Drew Tingley, JEG
Dave Ward, JEG

Ken Black, JEG
Jim Defenderfer, JEG
Paul Clement, JEG
Katie Kowalski,JEG
Document Control, JEG

ENTERED

**JACOBS ENGINEERING**

Engineers and Constructors

Otis ANG Base, MA

**Document Control Number:**
AFC-J23-35U40501-P1-0055

12/13/00 database adjustment

| Client, Project and Location | Project Note | Project No. |
|---|---|---|
| **AFCEE, MMR Plume Response Program DO 30 SPEIM Otis ANG Base, Massachusetts** | **Note No.: 0055** | **35-U40501** |

| Confirmation of | | |
|---|---|---|
| ☐ Project Staff Meeting-P1 | Date Held | November 29, 2000 |
| ☐ Client Meeting-P4 | Location | 318E |
| X Modification to Sampling Plans | Date Issued | December 7, 2000 |
| | Recorded By | Mike Morris |
| Subject: **Modification to the Ecological Monitoring Program** | Issued By | Lisa Allinger<br>Lisa Allinger<br>Jacobs Project Manager |

Participants (* Denotes Part Time Participation)

| Client | Jacobs/MMR |
|---|---|
| Spence Smith | Mike Morris |
| | Lisa Allinger |

| Item | Remarks | Action Required By |
|---|---|---|

### Introduction

The objective of this project note is to document the efforts made over the past year to optimize the ecological monitoring program. The result of these efforts is to recommend that all surface water and groundwater monitoring conducted to assess the effects of a treatment system on downgradient ecosystems be discontinued.

This project note outlines the ecological monitoring program for plumes associated with the treatment systems of the MMR and the results of several studies used to determine the impacts of treatment systems on downgradient ecosystems. This project note contains:

- A brief history of the development of the ecological monitoring program.
- A description of field measured physicochemical parameters and what they mean.
- The effects of treatment system process on these parameters based on process knowledge.
- An analysis of treatment system influent and effluent physicochemical parameters compared to background groundwater.
- A synopsis of two presentations to the TRET from May 25, 2000 and November 2, 2000.

These lines of evidence provide the justification for the elimination of all surface water and groundwater monitoring for the purpose of assessing potential impacts to ecosystems and groundwater from treatment system operation.

### Background

The Ecological Monitoring Program was developed as a result of the 60 percent design

of the FS-12 and SD-5N treatment systems. The objectives of the program was to (1) determine if contaminated groundwater is discharging into surface water ecosystems, (2) assess whether groundwater treatment activities cause adverse impacts to ecological receptors, and (3) provide a screening-level assessment of risk to ecological receptors posed by plume contaminants. These objectives are stated in the *Final Work Plan for the Ecological Assessment Associated with Groundwater Plumes and Remedial Activities* (AFCEE 1998).

These objectives were met using a two-phase approach for the assessment of impact to potentially affected ecosystems. The first phase consisted of baseline studies of these ecosystems for one year prior to treatment system start-up. The second phase consisted of studies of these ecosystems after treatment system start-up. The first and third objectives outlined in the preceding paragraph was accomplished through Phase I analysis of potentially impacted ecosystems. The second objective was to be assessed after treatment system start-up.

To assess the impacts of treatment systems on downgradient ecosystems, a set of ecological design targets or ecological criteria guidelines were developed through an iterative process in conjunction with the EPA, the DEP and the TRET. A two-tiered approach was developed to provide a framework for assessing the potential ecological impacts. Tier I elements were those parameters and impacts which could be directly measured and were associated with the operation of a groundwater treatment system. These parameters included water levels, temperature, pH, DO, DOC, TOC, and chlorophyll a. Tier II elements were defined as those constituents which were indirectly impacted by the operation of the remedial treatment systems (e.g. trophic state, biological resources, shoreline vegetation).

The ecological criteria guidelines were developed for the Tier I parameters and served as the first line of evidence in the weight of evidence approach. These guidelines were based on comparisons of a potentially impacted ecosystem (one that was or will be receiving treated water from the treatment systems) to reference ecosystems (ecosystems of similar characteristics such as size, volume, areal extent, that are not impacted by a groundwater plume or treated groundwater). These ecological criteria guidelines are presented in Table 7-2 of the *Final Work Plan for the Ecological Assessment Associated with Groundwater Plumes and Remedial Activities* (AFCEE 1998).

Phase II ecological studies have been implemented for the FS-12, SD-5, CS-10, LF-1, Ashumet Valley, FS-28, and FS-1 plumes. This project note will concentrate on FS-12, SD-5, CS-10, LF-1 and Ashumet Valley treatment systems. FS-28 and FS-1 deal with discharge of effluent into surface water bodies and will not be included in this assessment.

**Field Physicochemical Parameters**

Field physicochemical parameters provide the basis for following discussion regarding comparisons of treatment plant influent and effluent with background groundwater conditions. These field parameters provide the most comprehensive data set across all groundwater monitoring on the MMR. The following discussion describes these field parameters and conditions that might be expected in a groundwater aquifer or

ecosystem.

- **pH**—pH is defined as the negative base 10 logarithm of the effective hydrogen ion concentration in gram equivalents per liter. pH units range from 0 (most acidic) to 14 (most alkaline). pH in groundwater water can limit microbes from performing bioremedial processes if it drifts substantially from a neutral value of 7. A pH range of 5-9 is generally amenable to bioremediation.

- **Dissolved oxygen (DO)**—As in surface water, groundwater contains DO that is critical for biological and chemical processes. Microbes can utilize DO in groundwater while undergoing aerobic respiration. For remediation measures, high DO concentrations enhance the biodegradation of pollutants such as volatile organic compounds (e.g. TCE, PCE, etc.)

- **Temperature**—Temperature is measured in groundwater because it is a synergistic variable. A shift in temperature can change the properties of other measurements. For example, colder temperatures increase the ability of the water to hold dissolved oxygen, whereas warmer temperatures increase the speed of reactions. Temperature in groundwater systems tends to be controlled by climate, which can shift dramatically among seasons. Variations in temperature can lead to changes in other variables such as DO, ORP, and pH.

- **Specific Conductivity**—Specific conductivity is a measure of how well a substance conducts electricity. Water contains compounds that can enhance conductivity. Mineral ions, such as dissolved table salt, increase the ability of water to conduct electricity because ions help to conduct electricity. Specific conductivity is a general measurement to indicate the ion concentration in groundwater, and in freshwater systems, marked high measurements of conductivity (e.g. $> 600\ \mu S/cm$) can reflect contamination by ionic substances.

- **Oxidation Reduction Potential**—Oxidation reduction potential (ORP) is a measurement of a solution's oxidizing and reducing activity. Oxidation is an important process in remediation of groundwater contaminant plumes. In groundwater, a high ORP indicates a high ability to break down complex organic contaminants. More strongly positive ORP correlate to more efficient remediation process. Low ORP measurements indicate poor reactivity in the groundwater, and as a result, the degradation of pollutants will be slow.

- **Turbidity**—Turbidity is a measurement of how well light is scattered or absorbed by a solution. Microscopic organisms and particles can cause turbidity in water. To assure a safe drinking water supply, water treatment plants are required to maintain a uniform low turbidity of finished product. Similarly, low turbidity in groundwater is indicative of good quality, and high turbidity measurements can indicate water quality problems.

**Impact of Treatment Systems on Groundwater Quality**

The treatment systems at MMR are composed of a variety of process units. The processes and chemicals used are commonly employed in drinking water treatment, and thus impacts to water quality parameters are generally considered to be positive. The physical/chemical processes replicate natural purification processes such as oxidation, filtration, and adsorption. Although the treatment systems were designed to remove specific contaminants of concern, they also improve water quality in other ways.

Some of these processes expose the process water to air. This is most pronounced in the air strippers in the SD-5 South recirculation wells. However, contact between process water and air also occurs incidentally in the influent and effluent holding tanks at FS-12 and the effluent holding tank at the Sandwich Road Treatment Facility (SRTF). The process water cascades into these tanks, a distance of approximately 20 feet when the tank is empty. This exposure to air can be expected to increase the dissolved oxygen concentration and the oxidation-reduction potential of the water.

The SRTF and FS-12 Treatment System use greensand filtration to remove iron and manganese from the process water. The first step of this process is to adjust the pH to the 6.3 to 6.5 range using sodium hydroxide (NaOH). Next, approximately 1 mg/L of potassium permanganate ($KMnO_4$) is added. The potassium permanganate serves as an oxidant to help remove any dissolved (reduced) iron and manganese that may be present. Potassium permanganate also acts as a biocide. The greensand itself, manganese oxide-coated glauconite greensand, serves as a reservoir of oxidation equivalents capable of allowing for any irregularities in metals concentrations or potassium permanganate flow rate. The oxidized iron and other suspended solids are physically filtered out by the greensand filter bed. Manganese, on the other hand, is removed by the ion exchange capacity of the greensand. Thus, greensand filtration increases pH and oxidation-reduction potential and removes dissolved metals and suspended solids.

At the LF-1 treatment system, a pilot sodium hypochlorite (NaOCl) injection system is currently being evaluated. The goal of the system is to extend carbon bed life by reducing biological fouling. In addition to its role as a biocide, sodium hypochlorite also increases the oxidation-reduction potential of the process water. Free chlorine is removed to below the detection limit by subsequent granular activated carbon (GAC) adsorption.

All of the treatment systems, except for the SD-5 South recirculating wells, employ liquid phase GAC to remove organic contaminants. GAC has a number of direct impacts on process water quality. These include:

- Adsorption of a wide range of organic constituents,
- Impacts on pH,
- Adsorption of dissolved oxygen, and
- Physical filtration.

Versions of GAC have been used since ancient times to purify water because GAC is capable of removing a wide range of organic contaminants. Today it is considered the best available technology for removing a variety of organic contaminants to below detectable concentrations. Contaminants are adsorbed onto the surface of the GAC particles and are destroyed during off-site GAC regeneration.

Some commercially available varieties of GAC cause substantial increases in pH levels due to preferential sorption of anions as compared to cations. The variety of GAC used at MMR is manufactured using lower temperatures and a more oxidizing environment in order to avoid increases in pH levels. Thus, it is referred to as pH stabilized GAC.

GAC has a tendency to adsorb oxygen present in process water. This tendency is strongest in a new GAC bed and decreases over time.

The uppermost layer of a GAC bed tends to act as a physical filter and removes suspended solids from the process water. These solids are removed from the bed during backwashing. After settling, the sludge containing the solids is shipped off site for disposal. The supernatant is recycled through the treatment plant.

Because of the quantity of solids removed by the SRTF, a polymer is injected into the settling tank. This polymer was selected to decrease the settling time for the sludge and to increase the fraction of solids present in the sludge. The polymer also helps to produce a more highly clarified supernatant.

**Comparison of Influent and Effluent to Background Groundwater Approach**

Field physicochemical parameters were assessed in 67 groundwater monitoring wells (374 samples) around the MMR that were outside the known boundaries of plumes and outside of the influence of reception of treated groundwater. Table 1 presents the groundwater wells selected for the analysis and the associated mid-point screen depths for each well. The field physicochemical parameters for each well were compiled into a comprehensive data set that was used to characterize groundwater from the Sagamore Lens. Plant influent and effluent represent the pre-treated and treated water from each of the treatment systems. Plant influent and effluent ports used in this study are presented in Table 2. Not all of the data that were pulled from the database were used in this study. Conditions that were placed on the data for inclusion in this analysis are presented in Table 3.

**Results**

Results of the groundwater—influent—effluent comparisons are presented in Tables 4 through 10. These tables present the parameters assessed, the number of samples for each category (n), the mean , the median, the maximum and the minimum value for each parameter identified by category.

The data are presented graphically as a series of box-and-whisker plots in Figures 1 through 7. The box-and-whisker plots represent the distribution of data around the median value. The top and bottom of each box represents the 25th and 75th percentiles; the line in the center of the box represents the median or 50th percentile. The notches on each box are equivalent to the 95 percent confidence limits of the median. The upper adjacent value or whisker (T-shaped line) is the largest observation that is less than or equal to the 75th percentile plus 1.5 times the interquartile range (IQR—range from 25th to 75th percentiles). The lower adjacent value to the smallest observation that is greater than or equal to the 25th percentile minus 1.5 times IQR. Values located outside the upper and lower adjacent values are called outside values. Values that are under three IQRs from the adjacent values are called mild outliers (represented by a circle). Those values outside three IQRs are called severe outliers (represented by a triangle).

- Ashumet Valley—The Ashumet Valley treatment system employs a granular activated carbon Adsorption system and treated water is introduced to the aquifer through two infiltration trenches. The physicochemical parameters at the Ashumet Valley treatment system compare favorably to background groundwater conditions (Figure 1, Table 4). There are no cases where parameters in influent or effluent exceed background and in most cases, influent and effluent are clustered tightly around their medians. There is lower DO in the influent and effluent due to low DO conditions in the aquifer at Ashumet Valley and this is reflected in the distributions.

- LF-1—The LF-1 treatment system utilizes granular activated carbon adsorption combined with sodium hypochlorite treatment. Treated water is reintroduced to the aquifer through an infiltration gallery. In most cases, the physicochemical parameters in the influent and effluent are comparable to background groundwater concentrations (Figure 2, Table 5). ORP concentrations in the influent and effluent do exceed background levels, however, as stated previously, this effect is generally considered beneficial. There does seem to be some depletion of DO between influent and effluent, however both are within the background range. The remaining parameters show much tighter clustering around the medians for influent and effluent and are well within the range of background groundwater.

- CS-10 In-plume (IP) and Southwest Southern (SSW)—The CS-10 IP and SSW treatment system utilizes a granular activated carbon system and treated water is reintroduced to the aquifer through two infiltration trenches. In all cases, influent and effluent are within the range of background groundwater (Figure 3, Table 6). Most notable are elevated readings of DO and ORP in the influent and effluent which are considered beneficial to the aquifer. The influent and effluent are tightly clustered in comparison to background groundwater and appear to be similar in composition. This suggests that very little change occurs in the physicochemical parameters between influent and effluent at CS-10 IP treatment

system.

- FS-12—The FS-12 treatment system employs a granular activated carbon adsorption system and also includes a green sand filter plus influent and effluent tanks. Treated groundwater is reintroduced to the aquifer through a series of reinjection wells. There does seem to be some variability represented in the influent and effluent in comparison to background groundwater concentrations (Figure 4, Table 7). As in other systems, DO is elevated in the influent and effluent and even exceeds background levels in one influent sample. pH is also elevated in the plant effluent in comparison to plant influent, perhaps as a result of anion exchange from the carbon beds or the result of addition of caustics such as sodium hydroxide. Influent and effluent mean temperatures are also lower than mean background levels suggesting that the influent may be drawn from water deeper in the aquifer than mean conditions of the background groundwater. However, with the exception of influent DO and pH, all influent and effluent concentrations are within background levels. The variability in DO and pH are likely beneficial to the aquifer and would likely not represent an adverse impact downgradient.

- SD-5 North (N)—The SD-5N treatment system, also called the Sandwich Road treatment system utilizes a granular activated carbon adsorption system with a greensand filter, influent and effluent tanks, and polymer injection. Treated water is reintroduced to the aquifer through a series of reinjection wells. Distribution of physicochemical parameters in the influent and effluent are similar to those at FS-12 (Figure 5, Table 8). There is no case where any parameter concentration in the influent or effluent exceeds the concentrations in background groundwater. However, just like FS-12, there is elevated DO in the influent and effluent in comparison to background levels. There is also elevated pH levels in the effluent in comparison to the influent which may indicate anion exchange from the carbon beds or introduction of caustics (sodium hydroxide) for pH modification. Also, the mean temperatures of influent and effluent are generally lower than background groundwater perhaps indicating extraction of groundwater from deep in the aquifer.

- SD-5 South (S)—The SD-5S treatment consists of two recirculation wells that employ an in-well air stripping technology. There is also an extraction well on Hoopole Road, but that is treated here as part of the SD-5N treatment system. Treated water is reintroduced to the aquifer through the recirculation wells. There is some variability noted at SD-5S that is not observed with other treatment systems (Figure 6, Table 9). Temperatures in the influent and effluent do exceed background levels in two cases, however the medians of the influent and effluent are more similar to the background median. DO also exceeds background levels in the influent, but it is not observed in the plant effluent. The remaining parameters are within background levels. pH levels in the influent and effluent are generally more alkaline than background but well within range. It is also

noted that turbidity levels in effluent are much lower and less variable than in both influent and background groundwater.

The overall result of the comparison of influent and effluent with background groundwater are:

1. Influent and effluent distributions are clustered tightly for most parameters in comparison to background groundwater.
2. Major differences appear to result in higher pH, higher DO, and higher ORP in effluent in comparison to background groundwater. These are beneficial to any ecosystem and would result in overall improvements to the groundwater aquifer.
3. In a majority of cases, parameters measured in influent and effluent are well within background levels as measured in this study.

**TRET Presentation—May 25, 2000**

The TRET requested that AFCEE give a presentation on the development of the ecological monitoring program. The objective was to review the ecological criteria guidelines that had been developed for Tier I and Tier II parameters and make recommendations for their modification. AFCEE presented an approach to optimize surface water sampling by examining FS-12 and Snake Pond. Snake Pond is significant because it is the closest ecosystem to any treatment system and an estimated 25 percent of the total flux in the pond is groundwater treated by the FS-12 treatment system. Snake Pond represented the ecosystem most likely affected by the operation of a treatment system on the MMR.

The presentation to the TRET (May 25, 2000) was entitled "Factorial Experiments Combined with Block Designs: Taking the Next Step." The treatment system at FS-12 was used as the case study for this approach. The Tier I parameters of DO, pH, TOC, temperature, water levels, and Tier II chlorophyll *a* were analyzed for surface water samples collected from Snake, Peters, and Triangle ponds. A factorial experiment with blocking design approach was used to determine whether the FS-12 treatment system was having an effect on Snake Pond. This approach assesses the influence of a single factor while "blocking" or filtering the variation due to other factors in the model. Factors used in the experiment included season, year, limnion, class, and phase. The class factor determined differences between ponds and the phase factor determined effects of the treatment system on Snake Pond. Results from this analysis were:

- For all six dependent variables the class factor was not significant, indicating there was no measurable difference between the potentially impacted pond (Snake Pond) and the reference ponds (Peters and Triangle).
- The phase factor was significant for pH only.
- In defining the variability in the surface water, the factors of season, limnion, and year had significant affects on one or more dependent variables. This indicated that most of the variability in the ecosystems was due to natural variation.

- Simplification of the factorial model would justify removing class and phase as sources of variation in the surface water parameters. This means that there was not enough variation attributed to the operation of the treatment system to justify further analysis.
- The overall finding is that the treatment system at FS-12 has shown no affect on the surface water parameters in Snake Pond. Because Snake Pond provides the most extreme example of treatment system impact on an ecosystem, there is no scientific reason to monitor any ponds for physicochemical parameters to understand the effects of the treatment system on the ponds.

In a follow-up to the presentation, the TRET agreed with the approach with the exception of stating that they believed there was "little" impact of the treatment system on Snake Pond rather than "no" effect as stated in the presentation.

**TRET Presentation—November 2, 2000**

The TRET requested that AFCEE update them on the progress in the surface water optimization. The TRET was curious whether the factor analysis that was applied to FS-12 could be applied to other treatment systems.

A second presentation was made to the TRET on November 2, 2000. It was discovered that the factorial method presented to the TRET on May 25, 2000 was applicable only if treated water had reached the ecosystems being monitored. There was evidence that many ecosystems had yet to receive treated water. A modified analysis was presented entitled "MMR Treatment System Discriminant Analysis." This approach was applied to the treatment systems at FS-12, SD-5N, SD-5S, CS-10 Sandwich Road, CS-10 In-Plume, and Ashumet Valley. This approach compared field parameters (temperature, dissolved oxygen, pH, turbidity, specific conductance, and oxidation-reduction potential) between upgradient groundwater, treatment plant effluent, and reinjection-recirculation-infiltration groundwater. The results of this study were:

- Tier I parameters of temperature, dissolved oxygen, and pH are the most important in defining differences between groundwater and treated water.
- General pattern indicates that plant effluent is usually lower in temperature, higher in pH, and higher in DO than the upgradient or downgradient groundwater.
- In several cases, changes to the groundwater represented in the plant effluent are improvements to the quality of water prior to reintroduction to the aquifer.
- Changes observed in the plant effluent may also reflect variable field methodologies in comparison to groundwater.
- Discriminant analysis indicates that in most cases upgradient groundwater and downgradient groundwater are more similar to each other than to treated groundwater.
- It is believed that the similarities in upgradient and downgradient groundwater are

due to the re-equilibration of treated water once it reaches the aquifer.

- It is believed that even significant differences found in plant effluent have little effect on the field parameters once the water reaches the aquifer.
- Because there is little effect on the groundwater due to the reinjection-recirculation-infiltration of treated water, there is even less effect on ecosystems downgradient of these treatment systems.
- It is recommended that surface water monitoring that was conducted to determine treatment system effects be discontinued.

In a follow-up to the presentation the TRET recommended that the analysis be modified to exclude temperature data from the analysis and concentrate on shallow-unaffected upgradient groundwater. The TRET also agreed that there was no scientific reason to continue monitoring ecosystems for treatment system effects and agreed that surface water monitoring should be discontinued.

**Conclusion**

The information presented here and the analysis performed previously and presented at the two TRET meetings indicate that surface water monitoring to determine treatment system effects on surface water bodies is no longer needed. It is recommended that all sampling downgradient of the treatment systems for ecological impact or reinjection impact monitoring be discontinued for all physicochemical parameters used to study treatment system impacts. Treatment system impacts will be monitored for physicochemical parameters at the influent and effluent ports of these treatment systems. The recommended approach for analyzing treatment system effects may be summarized as:

- Examination of treatment plant influent and effluent.
- Comparison of physicochemical parameters in influent and effluent to background groundwater.
- Note and evaluate any outliers that might represent changes in effluent that may be related to operation of the treatment systems
- If changes are noted, examine the plant processes and determine if the outlier is a result of plant operation.

This direct impact monitoring approach is appropriate to determine if there are any treatment system impacts on the groundwater chemistry and should provide a more definitive representation of these impacts than downgradient groundwater or surface water ecosystems can provide. This recommendation may be implemented immediately.

Concurrence with the above changes/recommendations is represented by the signatures below:

| Client, Project and Location | Project Note | Project No. |
|---|---|---|
| **AFCEE, MMR Plume Response Program**<br>**DO 30 SPEIM**<br>**Otis ANG Base, Massachusetts** | | **35-U40501** |
| | **Note No.: 0055** | |

AFCEE Project Manager

12/7/00
DEP Project Manager

12/7/00
EPA Project Manager

Jacobs Project Manager

Attachments: Tables 1-9
Figures 1-6

Distribution:

Spence Smith, AFCEE/MMR
Rose Forbes, AFCEE/MMR
Marty Aker, AFCEE/MMR
Mike Minior, AFCEE/MMR
Jon Davis, AFCEE, MMR
David Jacobson, ARE (c/o IRP)
Leonard Pinaud, DEP
Elliott Jacobs, DEP
Paul Marchessault, EPA
Mike Jasinski, EPA
Bob Lim, EPA
Eric Banks, JEG
Kris Barrett, JEG
Doug Hodge, JEG
Lisa Allinger, JEG
Mike Goydas, JEG
Mike Morris, JEG
Ken Gaynor, JEG
Jon Wood, JEG
Jen Diaz, JEG
Lonnie Fallin, JEG
Drew Tingley, JEG
Dave Ward, JEG
Ken Black, JEG
Jim Defenderfer, JEG
Paul Clement, JEG
Katie Kowalski,JEG
Document Control, JEG

**Table 1**
**Groundwater Wells Used for Background Characterization**

| Monitoring Well | Depth to Midpoint of Screen (ft msl) | Closest Plume |
|---|---|---|
| 00MW00591B | -115.7 | Ashumet Valley |
| 00MW0555B | -40.15 | SD-5 |
| 00MW0555C | -49.94 | SD-5 |
| 00MW0557 | -42.66 | FS-1 |
| 00MW0587A | -115.3 | SD-5 |
| 00MW0587B | -17.23 | SD-5 |
| 03MW0022A | -4.6 | CS-10 |
| 03MW0024A | -3.6 | CS-10 |
| 03MW0044 | -33.28 | CS-10 |
| 03MW0048 | 4.84 | CS-10 |
| 03MW0070A | -72.5 | CS-10 |
| 03MW0082 | -44.83 | CS-10 |
| 03MW0106A | -128.08 | CS-10 |
| 03MW2146A | 8.12 | CS-10 |
| 12MW0100B | ND | CS-10 |
| 12MW0101A | ND | CS-10 |
| 12MW0101B | ND | CS-10 |
| 12MW0102B | ND | CS-10 |
| 12MW0102Z | -32.82 | CS-10 |
| 12MW0105A | 98.9 | CS-10 |
| 12MW0105B | 61 | CS-10 |
| 15MW0005 | 63.6 | FS-12 |
| 24MW0322 | 48.79 | SD-5 |
| 27MW0010 | 31.09 | CS-10 |
| 27MW0044 | -103.49 | LF-1 |
| 27MW0088 | -27.5 | LF-1 |
| 27MW2084 | 3.83 | LF-1 |
| 27MW2085 | -2.1 | LF-1 |
| 28MW0021 | 24.56 | SD-5 |
| 46MW0001 | 59.84 | SD-5 |
| 46MW0004 | 57.66 | SD-5 |
| 46MW0005 | 52.36 | SD-5 |
| 46MW0006 | ND | SD-5 |
| 69MW1507 | -87.57 | FS-28 |
| 69MW1508 | -154.73 | FS-28 |
| 69MW1513 | -56.84 | FS-28 |
| 69MW1524 | -97.6 | FS-29 |
| 69MW1530 | -157.47 | Ashumet Valley |
| 69MW1533 | -112.21 | Ashumet Valley |
| 90MP0059D | 7.26 | FS-12 |
| 90MW0004 | -5.05 | FS-12 |
| 90MW0022 | -9.4 | FS-12 |
| 90MW0065 | 17.76 | FS-12 |
| 90MW0070 | -9.89 | FS-12 |
| 90PZ0205 | 65.92 | FS-12 |

Table 1
Groundwater Wells Used for Background Characterization

| Monitoring Well | Depth to Midpoint of Screen (ft msl) | Closest Plume |
|---|---|---|
| 95MW0105 | -62.5 | Ashumet Valley |
| ECMWPTP01D | -15.49 | FS-12 |
| ECMWPTP01S | 64.61 | FS-12 |
| ECMWRBP01D | -61.42 | LF-1 |
| ECMWRBP01S | 16.08 | LF-1 |
| ECMWSNP01 | 71.34 | FS-12 |
| ECMWTRP01D | 9.43 | FS-12 |
| ECMWTRP01S | 63.28 | FS-12 |
| ECMWWAP01D | 34.18 | FS-12 |
| ECMWWAP01S | 63.38 | FS-12 |
| ECPZPLW01 | 36.75 | Ashumet Valley |
| ECPZPLW02 | 42.57 | Ashumet Valley |
| ECPZSNP05B | ND | FS-12 |
| ECPZSNP06D | ND | FS-12 |
| ECPZVP201 | ND | SD-5 |
| ECPZVP203 | 54.84 | SD-5 |
| ECPZVP301 | 31.89 | Ashumet Valley |
| ECPZVP701 | 22.48 | FS-29 |
| ECPZVP702 | 22.67 | FS-29 |
| ECPZWSB02 | 39.83 | SD-5 |
| MAMW0296I | -61.8 | Ashumet Valley |
| USFW492007 | 1.3 | Ashumet Valley |

ND = depth not determined, believed to be shallow

Table 2
Ports Used for Influent and Effluent Data

| Treatment System | Plant | Category | Location | Date Range |
|---|---|---|---|---|
| Sandwich Road | | Effluent | 28PLT01035 | 9/9/97 to 10/31/00 |
| Sandwich Road | | Influent | 28PLT01049 | 12/31/99 to 10/31/00 |
| SD-5S | Wheeler Road | Effluent | 28RW1101EF | 6/26/99 to 9/5/00 |
| SD-5S | Hillside Road | Effluent | 28RW1102EF | 6/23/99 to 9/5/00 |
| SD-5S | Wheeler Road | Influent | 28RW1101IN | 6/23/99 to 9/5/00 |
| SD-5S | Hillside Road | Influent | 28RW1102IN | 6/23/99 to 9/5/00 |
| Ashumet Valley | Plant A | Effluent | 95PLT01004 | 10/19/99 to 11/2/00 |
| Ashumet Valley | Plant B | Effluent | 95PLT02004 | 10/7/99 to 11/2/00 |
| Ashumet Valley | Plant A | Influent | 95PLT01001 | 10/19/99 to 11/2/00 |
| Ashumet Valley | Plant B | Influent | 95PLT02001 | 10/7/99 to 11/2/00 |
| FS-12 | | Effluent | 90PLT01053 | 9/18/97 to 10/31/00 |
| FS-12 | | Influent | 90PLT01001 | 9/22/97 to 10/31/00 |
| LF-1 | | Effluent | 27PLT01004 | 9/3/99 to 11/2/00 |
| LF-1 | | Influent | 27PLT01001 | 8/19/99 to 11/2/00 |
| CS-10 IP & SSW | Plant C | Effluent | 03PLT03004 | 4/4/00 to 11/1/00 |
| CS-10 IP & SSW | Plant D | Effluent | 03PLT04004 | 4/4/00 to 11/1/00 |
| CS-10 IP & SSW | Plant C | Influent | 03PLT03001 | 4/4/00 to 11/1/00 |
| CS-10 IP & SSW | Plant D | Influent | 03PLT04001 | 4/4/00 to 11/1/00 |
| CS-10 IP & SSW | Plant A | Effluent | 03PLT01003 | 6/21/99 to 11/1/00 |
| CS-10 IP & SSW | Plant B | Effluent | 03PLT02003 | 6/21/99 to 11/1/00 |
| CS-10 IP & SSW | Plant A | Influent | 03PLT01001 | 6/21/99 to 11/1/00 |
| CS-10 IP & SSW | Plant B | Influent | 03PLT02001 | 6/21/99 to 11/1/00 |

Table 3
Data Adjustments

| Parameter | Data Adjustment |
|---|---|
| pH | pH values for the FS-12 treatment system were modified by removing pH values from plant effluent before the use of pH stabilized carbon. This effected samples collected from September to November 1997. |
| All | All outliers that failed a Q-test were eliminated from the data set. |
| DO | All values of DO that were recorded as less than 0.0 mg/L were modified to 0.0 mg/L. |
| turbidity | All values of turbidity that were recorded as less than 0.0 ntu were modified to 0.0 ntu |
| DO | All values of DO that exceeded saturation limits according to the recorded temperature at standard pressure were modified to reflect maximum saturated |

**Figure 1: Ashumet Valley**

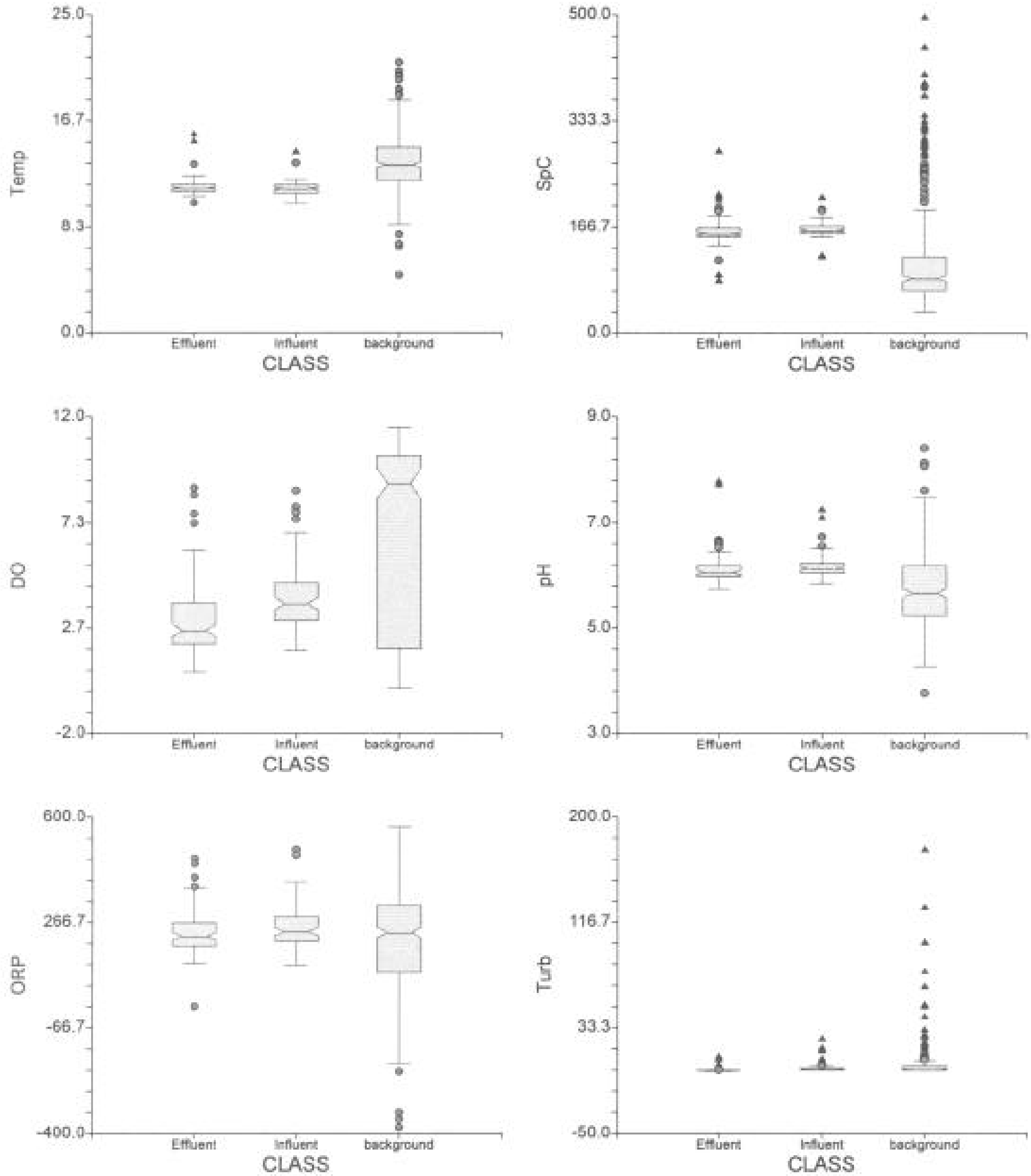
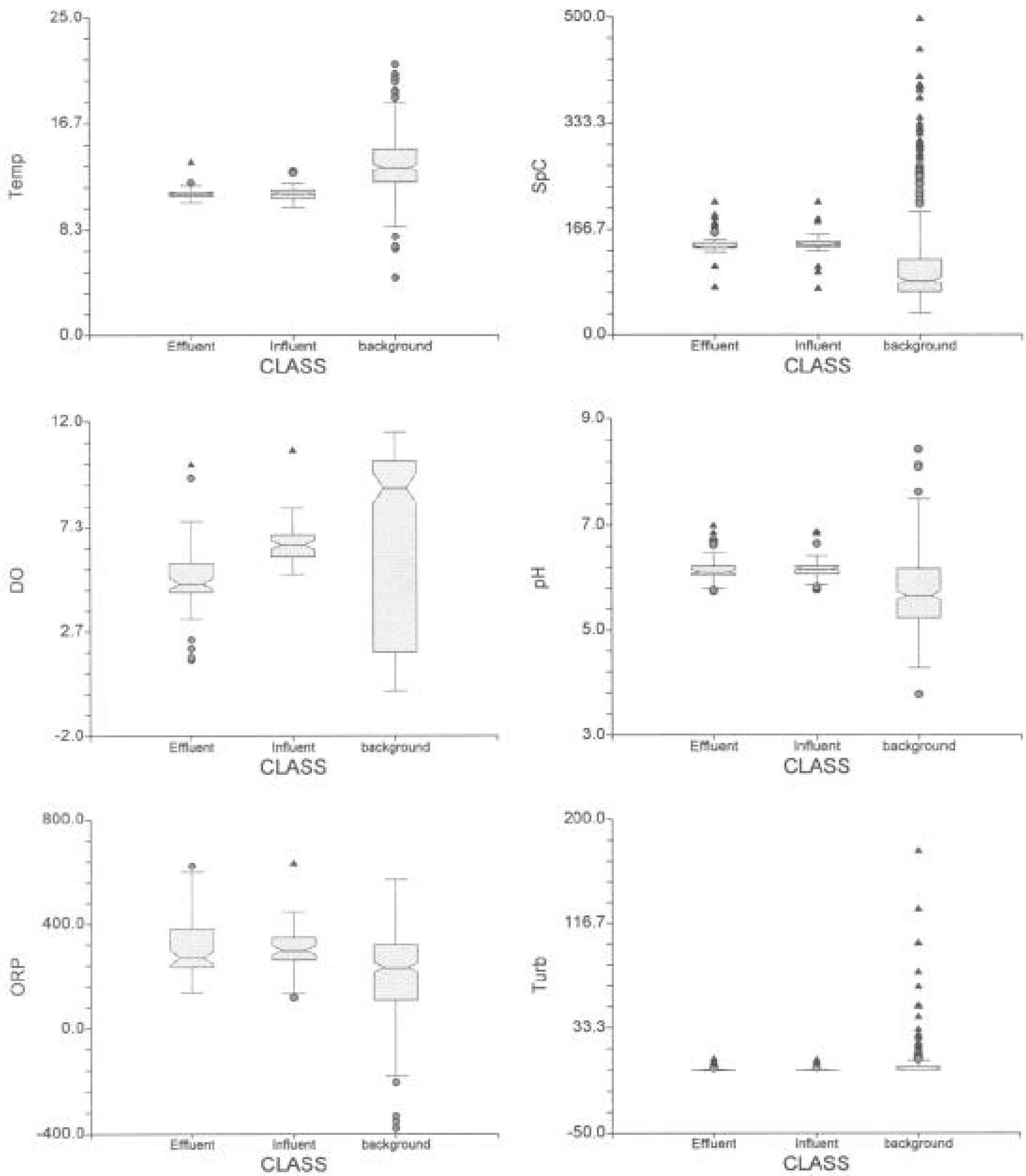


**Table 4**
**Ashumet Valley**
**Influent-Effluent-Background Groundwater**
**Descriptive Statistics**

| Parameter | Statistic | Influent | Effluent | Background |
|---|---|---|---|---|
| **Temperature (°C)** | n | 93 | 98 | 373 |
| | mean | 11.35 | 11.51 | 13.34 |
| | median | 11.37 | 11.4 | 13.22 |
| | minimum | 10.16 | 10.27 | 4.56 |
| | maximum | 14.26 | 15.61 | 21.27 |
| **Specific Conductivity (μS/cm)** | n | 93 | 98 | 374 |
| | mean | 164 | 161 | 117 |
| | median | 162 | 157 | 86.5 |
| | minimum | 120 | 82 | 34 |
| | maximum | 214 | 286 | 497 |
| **Dissolved Oxygen (mg/L)** | n | 93 | 98 | 374 |
| | mean | 4.02 | 3.15 | 6.96 |
| | median | 3.75 | 2.56 | 9.08 |
| | minimum | 1.68 | 0.73 | 0 |
| | maximum | 8.76 | 8.87 | 11.55 |
| **pH** | n | 93 | 98 | 374 |
| | mean | 6.17 | 6.12 | 5.71 |
| | median | 6.14 | 6.06 | 5.67 |
| | minimum | 5.85 | 5.74 | 3.77 |
| | maximum | 7.25 | 7.78 | 8.42 |
| **Oxidation Reduction Potential (mV)** | n | 93 | 98 | 374 |
| | mean | 252.3 | 234.7 | 202.0 |
| | median | 236.2 | 221.8 | 233.2 |
| | minimum | 130.1 | -0.1 | -379.4 |
| | maximum | 497.2 | 469.6 | 569.9 |
| **Turbidity (ntu)** | n | 93 | 97 | 373 |
| | mean | 1.86 | 0.35 | 4.85 |
| | median | 0.6 | 0 | 0.8 |
| | minimum | 0 | 0 | 0 |
| | maximum | 24.5 | 10.5 | 174.3 |

**Figure 2: LF1**



Temp
25.0
16.7
8.3
0.0
SpC
500.0
333.3
166.7
0.0
DO
12.0
7.3
2.7
-2.0
pH
9.0
7.0
5.0
3.0
ORP
800.0
400.0
0.0
-400.0
Turb
200.0
116.7
33.3
-50.0
Effluent
Influent
background
CLASS

**Table 5**
**LF-1**
**Influent-Effluent-Background Groundwater**
**Descriptive Statistics**

| Parameter | Statistic | Influent | Effluent | Background |
|---|---|---|---|---|
| **Temperature (°C)** | n | 62 | 70 | 373 |
| | mean | 11.16 | 11.18 | 13.34 |
| | median | 11.18 | 11.16 | 13.22 |
| | minimum | 10.08 | 10.46 | 4.56 |
| | maximum | 12.93 | 13.61 | 21.27 |
| **Specific Conductivity (μS/cm)** | n | 62 | 70 | 374 |
| | mean | 143 | 143 | 117 |
| | median | 143 | 139 | 86.5 |
| | minimum | 73 | 75 | 34 |
| | maximum | 209 | 209 | 497 |
| **Dissolved Oxygen (mg/L)** | n | 62 | 70 | 374 |
| | mean | 6.57 | 5.01 | 6.96 |
| | median | 6.57 | 4.81 | 9.08 |
| | minimum | 5.24 | 1.4 | 0 |
| | maximum | 10.72 | 10.09 | 11.55 |
| **pH** | n | 62 | 70 | 374 |
| | mean | 6.16 | 6.14 | 5.71 |
| | median | 6.17 | 6.12 | 5.67 |
| | minimum | 5.77 | 5.74 | 3.77 |
| | maximum | 6.87 | 6.99 | 8.42 |
| **Oxidation Reduction Potential (mV)** | n | 62 | 70 | 374 |
| | mean | 300.2 | 321.5 | 202.0 |
| | median | 299.9 | 271.2 | 233.2 |
| | minimum | 119.2 | 138.8 | -379.4 |
| | maximum | 632.2 | 622.6 | 569.9 |
| **Turbidity (ntu)** | n | 60 | 70 | 373 |
| | mean | 0.55 | 0.51 | 4.85 |
| | median | 0.1 | 0.05 | 0.8 |
| | minimum | 0 | 0 | 0 |
| | maximum | 7.6 | 8.4 | 174.3 |

**Figure 3: CS-10 in-plume and southwest southern**

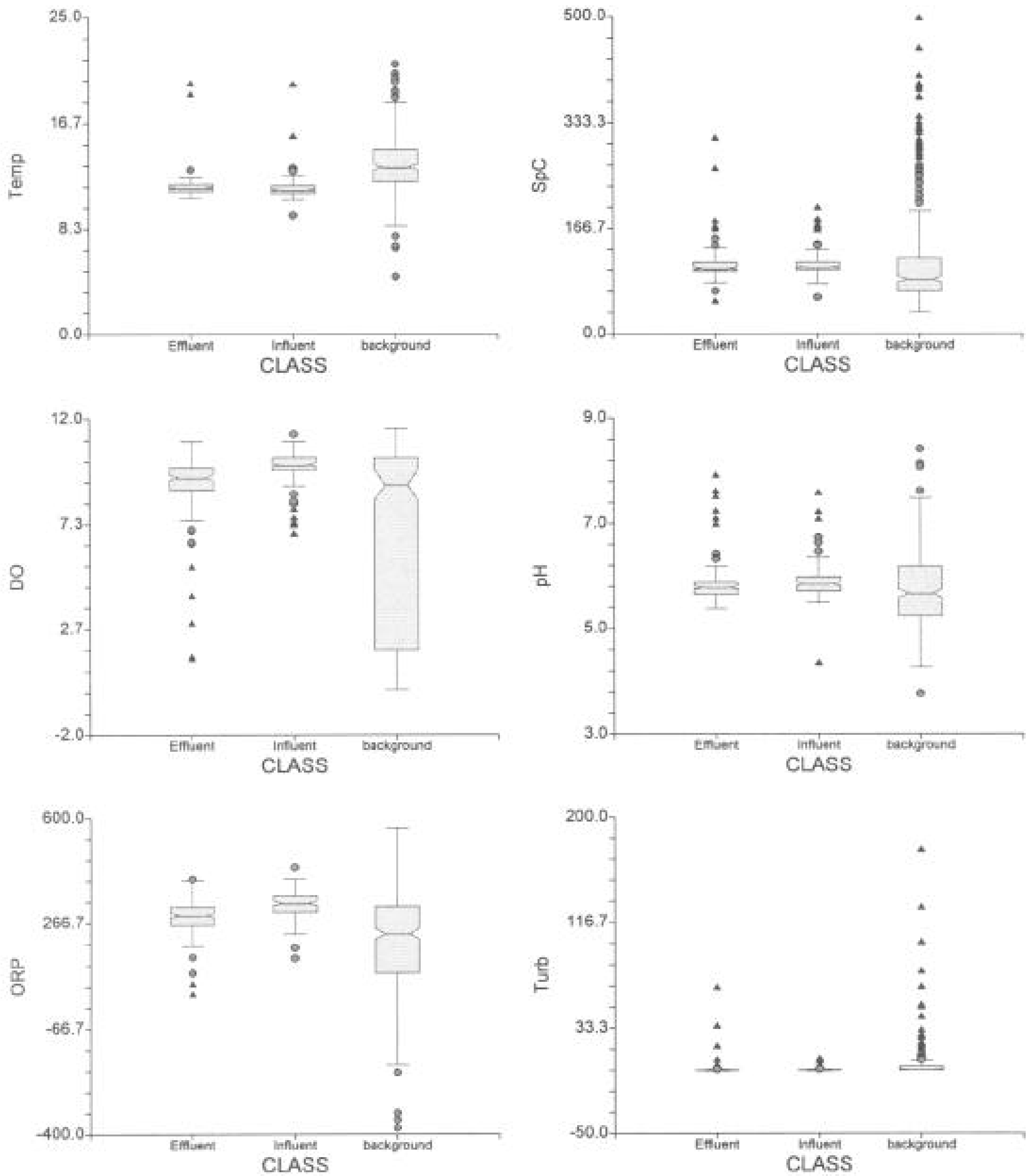


Table 6
CS-10 In Plume & Southwest Southern
Influent-Effluent-Background Groundwater
Descriptive Statistics

| Parameter | Statistic | Influent | Effluent | Background |
|---|---|---|---|---|
| Temperature (°C) | n | 162 | 162 | 373 |
| | mean | 11.54 | 11.68 | 13.34 |
| | median | 11.43 | 11.61 | 13.22 |
| | minimum | 9.43 | 10.82 | 4.56 |
| | maximum | 19.67 | 19.76 | 21.27 |
| Specific Conductivity (µS/cm) | n | 162 | 162 | 374 |
| | mean | 109 | 108 | 117 |
| | median | 105 | 103 | 86.5 |
| | minimum | 58 | 51 | 34 |
| | maximum | 199 | 308 | 497 |
| Dissolved Oxygen (mg/L) | n | 162 | 162 | 374 |
| | mean | 9.95 | 9.17 | 6.96 |
| | median | 9.98 | 9.41 | 9.08 |
| | minimum | 6.91 | 1.34 | 0 |
| | maximum | 11.32 | 11.01 | 11.55 |
| pH | n | 162 | 162 | 374 |
| | mean | 5.89 | 5.83 | 5.71 |
| | median | 5.85 | 5.78 | 5.67 |
| | minimum | 4.34 | 5.37 | 3.77 |
| | maximum | 7.58 | 7.91 | 8.42 |
| Oxidation Reduction Potential (mV) | n | 161 | 162 | 374 |
| | mean | 327.6 | 287.4 | 202.0 |
| | median | 329.4 | 292.4 | 233.2 |
| | minimum | 156 | 41 | -379.4 |
| | maximum | 443.4 | 407.6 | 569.9 |
| Turbidity (ntu) | n | 162 | 162 | 373 |
| | mean | 0.45 | 1.06 | 4.85 |
| | median | 0.1 | 0.1 | 0.8 |
| | minimum | 0 | 0 | 0 |
| | maximum | 9.2 | 65 | 174.3 |

**Figure 4: FS-12**

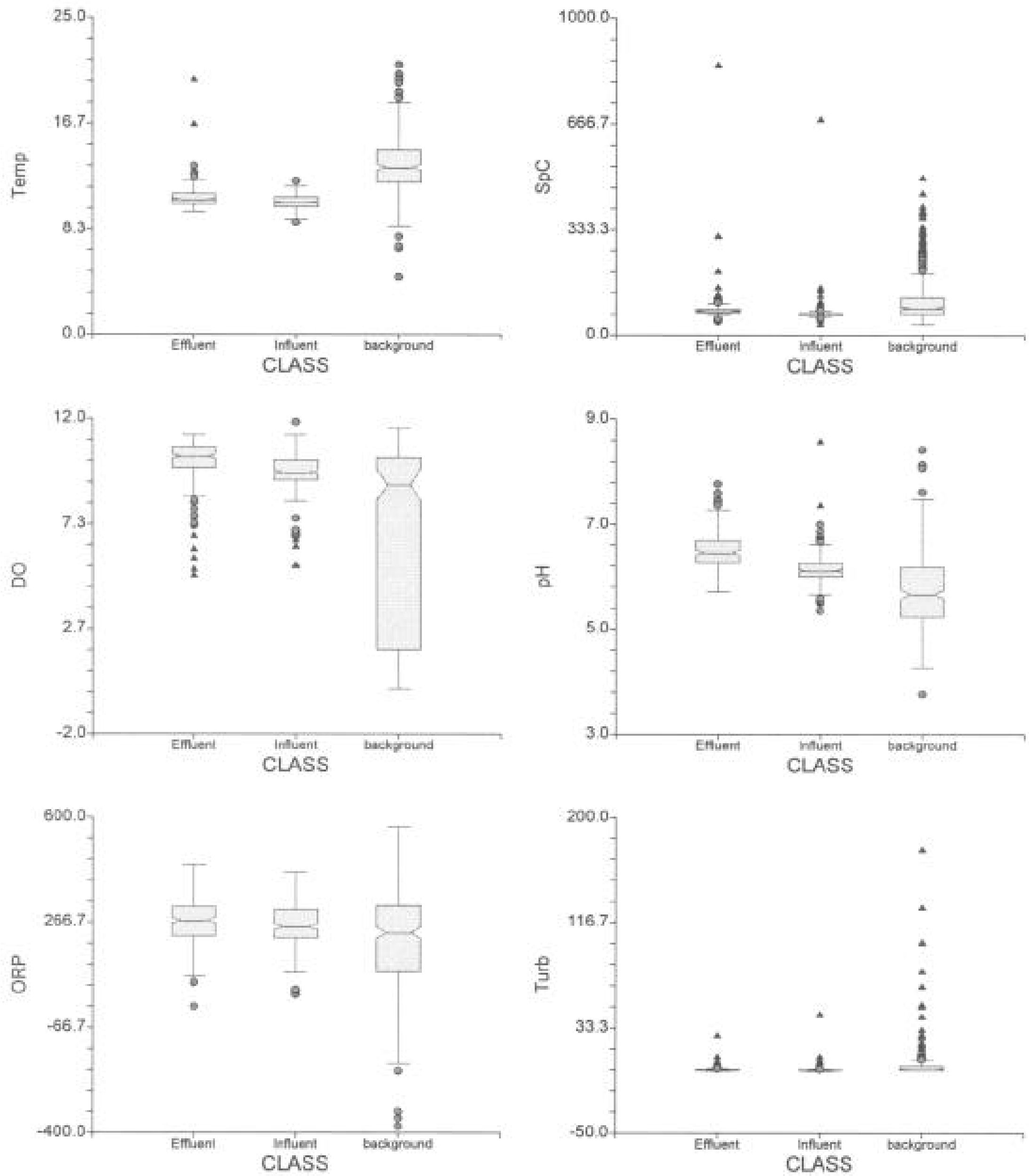


**Table 7**
**FS-12**
**Influent-Effluent-Background Groundwater**
**Descriptive Statistics**

| Parameter | Statistic | Influent | Effluent | Background |
|---|---|---|---|---|
| Temperature (°C) | n | 271 | 274 | 373 |
| | mean | 10.49 | 10.85 | 13.34 |
| | median | 10.44 | 10.71 | 13.22 |
| | minimum | 8.87 | 9.71 | 4.56 |
| | maximum | 12.14 | 20.1 | 21.27 |
| Specific Conductivity (µS/cm) | n | 271 | 274 | 374 |
| | mean | 69 | 78 | 117 |
| | median | 67 | 77 | 86.5 |
| | minimum | 34 | 43 | 34 |
| | maximum | 150 | 313 | 497 |
| Dissolved Oxygen (mg/L) | n | 272 | 275 | 374 |
| | mean | 9.69 | 10.16 | 6.96 |
| | median | 9.64 | 10.34 | 9.08 |
| | minimum | 5.45 | 5.04 | 0 |
| | maximum | 11.85 | 11.27 | 11.55 |
| pH | n | 272 | 265 | 374 |
| | mean | 6.15 | 6.51 | 5.71 |
| | median | 6.12 | 6.46 | 5.67 |
| | minimum | 5.35 | 5.71 | 3.77 |
| | maximum | 8.57 | 7.77 | 8.42 |
| Oxidation Reduction Potential (mV) | n | 272 | 275 | 374 |
| | mean | 258.3 | 266.5 | 202.0 |
| | median | 252.4 | 272.2 | 233.2 |
| | minimum | 37.1 | 0 | -379.4 |
| | maximum | 425 | 447.9 | 569.9 |
| Turbidity (ntu) | n | 272 | 275 | 373 |
| | mean | 0.6 | 0.57 | 4.85 |
| | median | 0 | 0.1 | 0.8 |
| | minimum | 0 | 0 | 0 |
| | maximum | 43.6 | 27.2 | 174.3 |

**Figure 5: SD-5N**

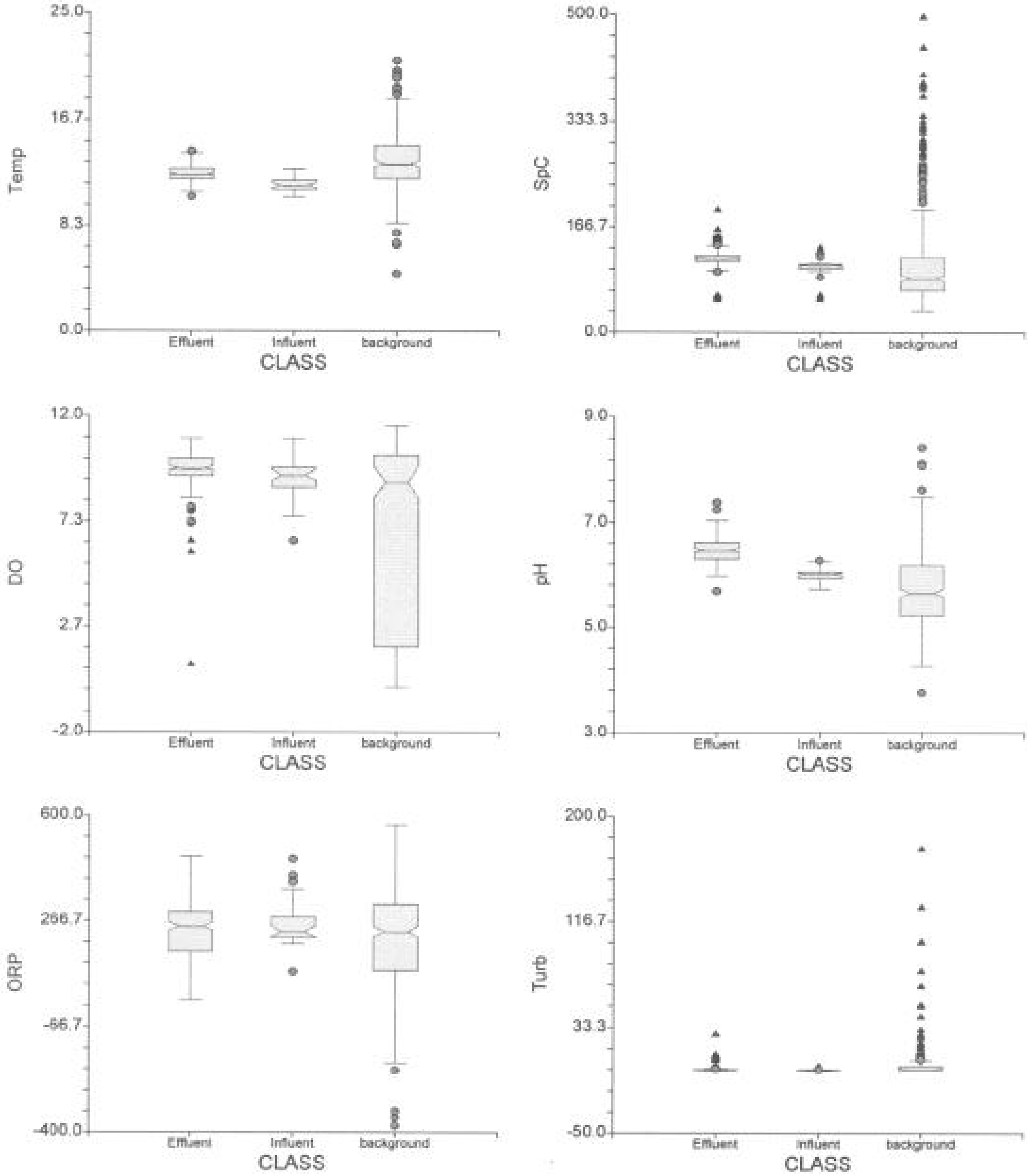


**Table 8**
**SD-5N**
**Influent-Effluent-Background Groundwater**
**Descriptive Statistics**

| Parameter | Statistic | Influent | Effluent | Background |
|---|---|---|---|---|
| **Temperature (°C)** | n | 37 | 231 | 373 |
| | mean | 11.58 | 12.42 | 13.34 |
| | median | 11.54 | 12.37 | 13.22 |
| | minimum | 10.6 | 10.62 | 4.56 |
| | maximum | 12.75 | 14.16 | 21.27 |
| **Specific Conductivity (µS/cm)** | n | 37 | 230 | 374 |
| | mean | 101 | 117 | 117 |
| | median | 107 | 117 | 86.5 |
| | minimum | 53 | 52 | 34 |
| | maximum | 135 | 194 | 497 |
| **Dissolved Oxygen (mg/L)** | n | 37 | 231 | 374 |
| | mean | 9.31 | 9.64 | 6.96 |
| | median | 9.39 | 9.69 | 9.08 |
| | minimum | 6.46 | 0.99 | 0 |
| | maximum | 11.01 | 11.01 | 11.55 |
| **pH** | n | 37 | 231 | 374 |
| | mean | 6.00 | 6.48 | 5.71 |
| | median | 6.02 | 6.47 | 5.67 |
| | minimum | 5.74 | 5.69 | 3.77 |
| | maximum | 6.28 | 7.38 | 8.42 |
| **Oxidation Reduction Potential (mV)** | n | 37 | 231 | 374 |
| | mean | 255.5 | 236.2 | 202.0 |
| | median | 233.3 | 249.9 | 233.2 |
| | minimum | 105.4 | 18.2 | -379.4 |
| | maximum | 462.2 | 469.2 | 569.9 |
| **Turbidity (ntu)** | n | 37 | 230 | 373 |
| | mean | 0.16 | 0.65 | 4.85 |
| | median | 0 | 0 | 0.8 |
| | minimum | 0 | 0 | 0 |
| | maximum | 2.9 | 28 | 174.3 |

**Figure 6: SD-5S**

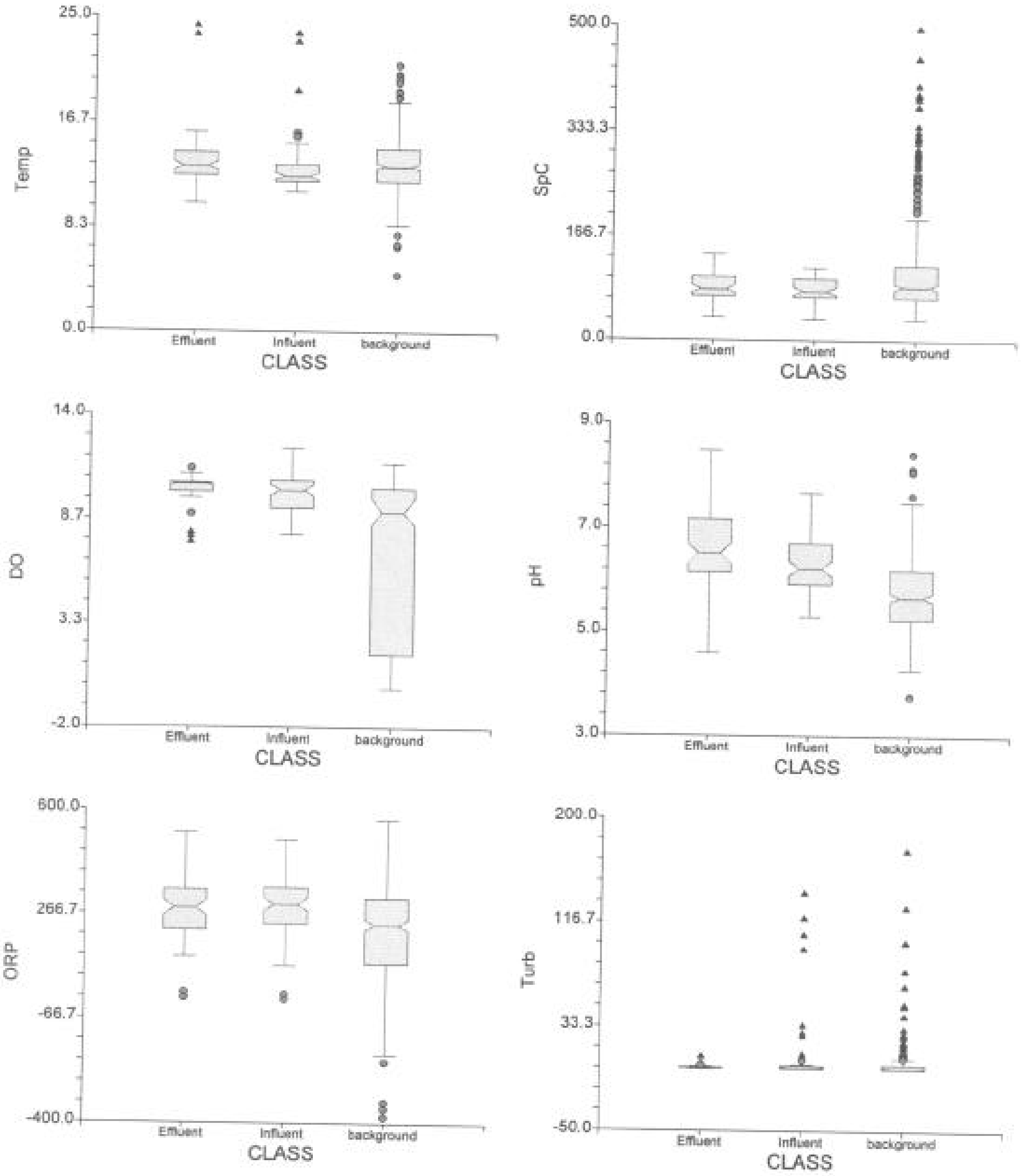


**Table 9**
**SD-5S**
**Influent-Effluent-Background Groundwater**
**Descriptive Statistics**

| Parameter | Statistic | Influent | Effluent | Background |
|---|---|---|---|---|
| **Temperature (°C)** | n | 67 | 67 | 373 |
| | mean | 13.07 | 13.56 | 13.34 |
| | median | 12.42 | 13.19 | 13.22 |
| | minimum | 11.15 | 10.26 | 4.56 |
| | maximum | 23.69 | 24.32 | 21.27 |
| **Specific Conductivity (µS/cm)** | n | 57 | 59 | 374 |
| | mean | 81 | 84 | 117 |
| | median | 79 | 82 | 86.5 |
| | minimum | 35 | 37 | 34 |
| | maximum | 116 | 138 | 497 |
| **Dissolved Oxygen (mg/L)** | n | 67 | 67 | 374 |
| | mean | 9.91 | 10.28 | 6.96 |
| | median | 10.18 | 10.49 | 9.08 |
| | minimum | 7.89 | 7.52 | 0 |
| | maximum | 12.31 | 11.27 | 11.55 |
| **pH** | n | 67 | 67 | 374 |
| | mean | 6.30 | 6.59 | 5.71 |
| | median | 6.22 | 6.51 | 5.67 |
| | minimum | 5.28 | 4.59 | 3.77 |
| | maximum | 7.67 | 8.49 | 8.42 |
| **Oxidation Reduction Potential (mV)** | n | 67 | 67 | 374 |
| | mean | 288.0 | 279.6 | 202.0 |
| | median | 297.9 | 285.7 | 233.2 |
| | minimum | -5.3 | -2.3 | -379.4 |
| | maximum | 503 | 528.3 | 569.9 |
| **Turbidity (ntu)** | n | 67 | 67 | 373 |
| | mean | 9.45 | 0.74 | 4.85 |
| | median | 0.7 | 0.3 | 0.8 |
| | minimum | 0 | 0 | 0 |
| | maximum | 139.7 | 9.5 | 174.3 |

JE JACOBS ENGINEERING®
Engineers and Constructors
Otis ANG Base, MA

ENTERED

Document Control Number:
AFC-J23-35U40503-A4-0024

| Client, Project and Location<br>**AFCEE, MMR Plume Response Program**<br>**FS-12/SPEIM**<br>**Otis ANG Base, Massachusetts** | **Project Note-**<br>**Change Notice**<br>**Note No.: 0024** | Delivery Order 30<br>Project No. **35-U405-03** |
|---|---|---|

| Confirmation of<br>☒ Change Notice Project Note-A4<br>☐<br>☐ | Date Held: 11 December 2000<br>Location:<br>Date Issued: 31 January 2001<br>Recorded By: Mike Morris |
|---|---|
| Subject<br>**FS-12 SPEIM Modifications—Change in Sampling of Microwells (No Cost)** | Issued By: Lisa Allinger<br>Jacobs Project Manager |

Participants (* Denotes Part Time Participation)

| Client | Jacobs/MMR | Jacobs/Oak Ridge<br>Via Conference Call |
|---|---|---|
| Rose Forbes | Mike Morris | |
| Spence Smith | Lisa Allinger | Others |

| Item | Remarks | Action Required By |
|---|---|---|
| 1 | This change notice is in response to project note #AFC-J23-35U40501-P1-0055, "Modification to Ecological Monitoring Program." In this project note, all surface water and groundwater sampling to determine treatment system effects was discontinued.<br><br>Wells ECMWSNP02S,D and ECMWSNP03S,D associated with FS-12 have previously been sampled for VOCs and physicochemical parameters. As the result of regulatory concurrence with project note #AFC-J23-35U40501-P1-0055, physicochemical sampling is no longer necessary. Only EDB monitoring will be done to aid in the on-going study of the groundwater contamination west of reinjection wells 90RIW0005 through 90RIW0010. | |

Attachments: None

Distribution:
Spence Smith, AFCEE/MMR
Rose Forbes, AFCEE/MMR
Marty Aker, AFCEE/MMR
Mike Minior, AFCEE/MMR
Jon Davis, AFCEE, MMR
David Jacobson, ARE (c/o IRP)
Eric Banks, JEG
Doug Hodge, JEG
Lisa Allinger, JEG
Mike Goydas, JEG
Mike Morris, JEG
Drew Tingley, JEG
Dave Ward, JEG
Jon Wood, JEG
Jen Diaz, JEG
Lonnie Fallin, JEG
Ken Black, JEG
Jim Defenderfer, JEG
Paul Clement, JEG
Katie Kowalski, JEG
Document Control, JEG

FEB 07 2001

JACOBS ENGINEERING®
Engineers and Constructors
Otis ANG Base, MA

ENTERED

Document Control Number:
AFC-J23-35U40503-P1-0009

| Client, Project and Location | Project Note | Delivery Order 30 Project No 35-U405-03 |
|---|---|---|
| AFCEE, MMR Plume Response Program FS-12/SPEIM Otis ANG Base, Massachusetts AFCEE Contract F41624-97-D-8006 | Note No.: 0009 | |

| Confirmation of | | |
|---|---|---|
| ☒ Project Note-P1 | Date Held | 19 December 2000 |
| ☐ Client Meeting-P4 | Location | 318-E |
| ☐ | Date Issued | 24 January 2001 |
| | Recorded By | Mike Morris |
| Subject: **FS-12 SPEIM—Recommendations for Additional Groundwater Monitoring** | Issued By | Lisa Allinger, Jacobs Project Manager |

Participants (* Denotes Part Time Participation)

| Client | Jacobs/MMR | Jacobs/Oak Ridge Via Conference Call |
|---|---|---|
| Rose Forbes | Mike Morris | |
| | Mike Goydas | |

| Item | Remarks | Action Required By |
|---|---|---|
| | A special JPAT meeting was held at the IRP on December 19, 2000. This meeting focused on the monitoring network at FS-12 and the additional monitoring that was necessary to further characterize the "plumelet" under Snake Pond and to monitor for effectiveness of the conversion of 90RIW0010 into an extraction well. The proposed changes to the monitoring network will be re-evaluated after two rounds of groundwater monitoring (two quarters) are performed. These two rounds of sampling will be completed prior to modified treatment system startup in June 2001. The proposed monitoring of VOCs will be re-evaluated after one round of sampling. The following wells will be added to the monitoring network for chemical and hydraulic monitoring:<br><br>**Chemical Monitoring:**<br><br>90MW0058—Quarterly: EDB, VOCs<br>90MW100A—Quarterly: EDB, VOCs; Semiannual: metals[1]<br>90MW100B—Quarterly: EDB, VOCs; Semiannual: metals[1]<br>90MW0103A—Quarterly: EDB, VOCs<br>[2] 90RIW0010 (Sampled as portable GAC influent)—Monthly: EDB, VOCs, Physicochemical Parameters<br>[2] Portable GAC effluent—Monthly: EDB, VOCs, Physicochemical Parameters<br>90MP0059B—Quarterly: EDB, VOCs<br>90MW0049—Quarterly: EDB, VOCs<br>90RIW0009 Level 1—Quarterly: EDB, VOCs | |

90RIW0009 Level 2—Quarterly: EDB, VOCs
90MP0060A—Quarterly: EDB, VOCs
90MP0060B—Quarterly: EDB, VOCs
90MP0060C—Quarterly: EDB, VOCs
[3] 90MP0060D—Quarterly: EDB, VOCs, total metals
90MP0060E—Quarterly: EDB, VOCs
90MP0060F—Quarterly: EDB, VOCs
90PZ1-B1—Quarterly: EDB, VOCs
90PZ1-B2—Quarterly: EDB, VOCs
90PZ1-C1—Quarterly: EDB, VOCs
90MW0101A—Quarterly: EDB, VOCs
[3] 90MW0015—Quarterly: EDB, VOCs, total metals
[3] 90MW0050—Quarterly: EDB, VOCs
[3] ECMWSNP02S—Quarterly: EDB, VOCs
[3] ECMWSNP02D—Quarterly: EDB, VOCs
[3] ECMWSNP03S—Quarterly: EDB, VOCs
[3] ECMWSNP03D—Quarterly: EDB, VOCs
Proposed Well A1—Quarterly: EDB, VOCs
Proposed Well A2—Quarterly: EDB, VOCs
(Located on northeast side of Snake Pond near ECMWSNP02S,D)
Proposed Well B1—Quarterly: EDB, VOCs
Proposed Well B2—Quarterly: EDB, VOCs
(Located on Isthmus on Northwest side of Snake Pond)
Proposed Well C1—Quarterly: EDB, VOCs
Proposed Well C2—Quarterly: EDB, VOCs
(Located on south side of Snake Pond)
Proposed Well D1—Quarterly: EDB, VOCs
Proposed Well D2—Quarterly: EDB, VOCs
(Located on southeast side of Snake Pond)

**Hydraulic Monitoring:**

90PZ0204—Quarterly Synoptic
ECMWSNP01—Quarterly Synoptic
ECMWSNP02S—Quarterly Synoptic
ECMWSNP02D—Quarterly Synoptic
90RIW0009—Quarterly Synoptic
90PZ1-B1—Quarterly Synoptic
90PZ1-B2—Quarterly Synoptic
90PZ1-C1—Quarterly Synoptic
90RIW0008—Quarterly Synoptic
90MP0060A—Quarterly Synoptic

| Item | Remarks | Action Required By |
|---|---|---|

90MP0060B—Quarterly Synoptic (pending access)
90MP0060C—Quarterly Synoptic
[3] 90MP0060D—Quarterly Synoptic
90MP0060E—Quarterly Synoptic
90MP0060F—Quarterly Synoptic
ECPZSNP01—Quarterly Synoptic
ECMWSNP03S—Quarterly Synoptic
ECMWSNP03D—Quarterly Synoptic
90RIW0010—Quarterly Synoptic
ECPZSNP02—Quarterly Synoptic
90RIW0013—Quarterly Synoptic
90MW0058—Quarterly Synoptic
[3] 90MW0015—Quarterly Synoptic
[3] 90MW0050—Quarterly Synoptic
Proposed Well B1—Quarterly Synoptic
Proposed Well B2—Quarterly Synoptic
(Located on Isthmus on Northwest side of Snake Pond)
[3] ECSGSNP02—Monthly Water Levels (staff gauge)

[1]total metals analysis was added to 90MW0100A,B in substitution of 90MW0050. 90MW0100A,B is located closer to Snake Pond and provides a more strategic location to monitor for metal concentrations that may enter Snake Pond from the stagnation zone on the eastern shore.

[2]This sample port will be monitored pending implementation of the portable GAC unit as the preferred alternative.

[3] Indicates monitoring that was in place prior to JPAT meeting on December 19, 2000.

**Schedule**

These wells and all remaining monitoring will be conducted on the following schedule:

Quarterly: March, May, September, December
Semiannually: May, December
Annually: May

All monitoring that was previously performed under different schedules will now adhere to the new schedule.

These changes will be implemented after the new Task Order 0015 contract for SPEIM is in place.

JE

| Client, Project and Location | | Delivery Order |
|---|---|---|
| AFCEE, MMR Plume Response Program<br>FS-12/SPEIM<br>Otis ANG Base, Massachusetts | **Project Note**<br>**Note No.:** 0009 | 30<br>**Project Number**<br>**35-U405-03** |

| Item | Remarks | Action Required By |
|---|---|---|
| | Concurrence with the above recommendations is represented by the signatures below: | |

Rose H Forbes 24 Jan 01
AFCEE Project Manager

1/24/01
EPA Representative

1/24/01
DEP Representative

Attachments:

None

Distribution:

Spence Smith, AFCEE/MMR
Rose Forbes, AFCEE/MMR
Marty Aker, AFCEE/MMR
Mike Minior, AFCEE/MMR
David Jacobson, ARE (c/o IRP)
Leonard Pinaud, DEP
Paul Marchessault, EPA
Mike Jasinski, EPA
Bob Lim, EPA
Elliott Jacobs, DEP

Eric Banks, JEG
Doug Hodge, JEG
Lisa Allinger, JEG
Mike Goydas, JEG
Drew Tingley, JST
Lonnie Fallin, JEG
Mike Morris, JEG
Jen Diaz, JEG
Katie Kowalski, JEG
Ron Citterman, JEG

Document Control, JEG

# APPENDIX C

# Data Summary Report

## SAMPLE COLLECTION

Jacobs Engineering Group Inc. collected 73 groundwater samples from monitoring wells, 29 groundwater samples from extraction wells, 70 borewater samples, six wastewater samples from groundwater treatment plants, and three surface water samples to obtain sufficient data to meet the system performance and ecological impact objectives of the Fuel Spill-12 groundwater treatment system. Samples were collected between 24 October 2000 and 04 January 2001. Samples were submitted to Severn Trent Laboratories (SVTU) in University Park, Illinois for alkalinity, dissolved organic carbon (DOC), total organic carbon (TOC), and total metals analyses. Samples were submitted to Aquatec Biological Services (AQBS) in Burlington, Vermont for micronutrient (ammonia, nitrate, nitrate, orthophosphorous, total nitrogen, total phosphorus) and chlorophyll-*a* analyses. Samples were submitted to Severn Trent Laboratories (SVTW) of Westfield, Massachusetts (the on-site laboratory) for volatile organic (VOC) and ethylene dibromide (EDB) analyses. Samples were submitted to Severn Trent Laboratory (formerly Quanterra Environmental Services) (QESF) in Tampa, Florida for VOC, EDB, and total suspended solids (TSS) analyses. Quality control (QC) samples were also collected and submitted for analysis as designated in the Massachusetts Military Reservation (MMR) *Quality Program Plan* (QPP) (AFCEE 2000)[1] and included field duplicate (FD) samples, equipment blanks (EBs), trip blanks (TBs) (for VOC analyses only), matrix spike and matrix spike duplicate (MS/MSD) samples, and/or laboratory replicate and matrix spike samples.

## DATA VALIDATION AND REVIEW

All data were reviewed for the following elements:

[1] AFCEE (Air Force Center for Environmental Excellence). 2000 (September). *Quality Program Plan*. AFC-J23-35Q85101-M3-0002. Prepared by Jacobs Engineering Group Inc. for AFCEE/MMR Installation Restoration Program, Otis Air National Guard Base, MA.

- Field precision
- Laboratory precision
- Field accuracy
- Sample holding times and preservation
- Instrument calibrations
- Laboratory blanks
- Matrix spikes
- Laboratory control samples
- Internal standards
- Surrogate spikes.

**Field Precision**

Field precision is measured by collecting and submitting FD samples. Ten FD samples were collected and submitted with the groundwater samples from monitoring wells for EDB analyses; two FD samples were collected and submitted with the groundwater samples from extraction wells for EDB analyses; and five FD samples were collected with the borewater samples for EDB analyses. Five FD samples were collected and submitted with the groundwater samples from monitoring wells for VOC analyses; two FD samples were collected and submitted with the groundwater samples from extraction wells for VOC analyses; and four FD samples were collected with the borewater samples for VOC analyses. Three FD samples were collected and submitted for total metals analyses. One FD sample was collected and submitted with groundwater from monitoring wells, wastewater from plants, and surface water for general chemistry analyses. Relative percent difference (RPD) values exceeded acceptance criteria for alkalinity in the sample collected at location ECPTP04 and in the sample collected at location 90PLT01001 on 30 November 2000; these results were qualified as estimated (coded J). RPD criteria were met for all FD sample pairs, indicating the use of good sampling techniques; qualifications were not required. FD results for all detected target analytes are presented in the following table.

## Table C-1
## Field Duplicate Precision Results for Detected Analytes

| Location | Analyte | Date Sampled | Native Sample Result | Duplicate Sample Result | RL | Units | RPD |
|---|---|---|---|---|---|---|---|
| 90EW0009 | 1,2-DIBROMOETHANE (EDB) | 12/15/00 | 1.10 J | 1.10 J | 0.05 | µg/L | 0 |
| 90EW0009 | 1,2-DIBROMOETHANE (EDB) | 12/15/00 | 1 | 1 | 1 | µg/L | 0 |
| 90EW0009 | BENZENE | 12/15/00 | 6 | 6 | 1 | µg/L | 0 |
| 90EW0009 | CHLOROFORM | 12/15/00 | 1 | 1 | 1 | µg/L | 0 |
| 90EW0019 | 1,2-DIBROMOETHANE (EDB) | 12/19/00 | 15 | 16 | 0.5 | µg/L | 6.5 |
| 90EW0019 | 1,2-DIBROMOETHANE (EDB) | 12/19/00 | 16 | 15 | 1 | µg/L | 6.5 |
| 90EW0019 | BENZENE | 12/19/00 | 4.2 | 4.1 | 1 | µg/L | 2.4 |
| 90EW0019 | CHLOROFORM | 12/19/00 | 1.2 | 1.2 | 1 | µg/L | 0 |
| 90MP0059B | 1,2-DIBROMOETHANE (EDB) | 10/25/00 | 0.031 | 0.032 | 0.01 | µg/L | 3.2 |
| 90MP0060D | BARIUM (TOTAL) | 12/13/00 | 4.10 J | 3.50 J | 200 | µg/L | 15.8 |
| 90MP0060D | CALCIUM (TOTAL) | 12/13/00 | 2300 J | 2290 J | 5000 | µg/L | 0.4 |
| 90MP0060D | CHROMIUM (TOTAL) | 12/13/00 | ND | 0.800 J | 10 | µg/L | NC |
| 90MP0060D | COPPER (TOTAL) | 12/13/00 | ND | 4.10 J | 25 | µg/L | NC |
| 90MP0060D | MAGNESIUM (TOTAL) | 12/13/00 | 1340 J | 1330 J | 5000 | µg/L | 0.7 |
| 90MP0060D | POTASSIUM (TOTAL) | 12/13/00 | 784. J | 772. J | 5000 | µg/L | 1.5 |
| 90MP0060D | SODIUM (TOTAL) | 12/13/00 | 10900 | 10700 | 5000 | µg/L | 1.9 |
| 90MP0060D | TOLUENE | 12/13/00 | 0.660 J | 0.700 J | 1 | µg/L | 5.9 |
| 90MW0003 | BARIUM (TOTAL) | 12/11/00 | 5.30 J | 4.70 J | 200 | µg/L | 12 |
| 90MW0003 | CALCIUM (TOTAL) | 12/11/00 | 4110 J | 4140 J | 5000 | µg/L | 0.7 |
| 90MW0003 | COBALT (TOTAL) | 12/11/00 | 4.50 J | 5.40 J | 50 | µg/L | 18.2 |
| 90MW0003 | IRON (TOTAL) | 12/11/00 | 718 | 800 | 100 | µg/L | 10.8 |
| 90MW0003 | MAGNESIUM (TOTAL) | 12/11/00 | 2460 J | 2510 J | 5000 | µg/L | 2 |
| 90MW0003 | MANGANESE (TOTAL) | 12/11/00 | 255 | 258 | 15 | µg/L | 1.2 |
| 90MW0003 | NICKEL (TOTAL) | 12/11/00 | 3.00 J | 3.40 J | 40 | µg/L | 12.5 |
| 90MW0003 | POTASSIUM (TOTAL) | 12/11/00 | 792. J | 788. J | 5000 | µg/L | 0.5 |
| 90MW0003 | SODIUM (TOTAL) | 12/11/00 | 8290 | 8310 | 5000 | µg/L | 0.2 |
| 90MW0003 | BENZENE | 12/11/00 | 1.1 | 1.1 | 1 | µg/L | 0 |
| 90MW0003 | XYLENES, TOTAL | 12/11/00 | ND | 0.530 J | 1 | µg/L | NC |
| 90MW0028 | 1,2-DIBROMOETHANE (EDB) | 12/12/00 | 1.9 | 1.9 | 0.1 | µg/L | 0 |
| 90MW0028 | BARIUM (TOTAL) | 12/12/00 | 3.50 J | 3.60 J | 200 | µg/L | 2.8 |
| 90MW0028 | CALCIUM (TOTAL) | 12/12/00 | 2120 J | 2130 J | 5000 | µg/L | 0.5 |
| 90MW0028 | COBALT (TOTAL) | 12/12/00 | ND | 1.90 J | 50 | µg/L | NC |
| 90MW0028 | IRON (TOTAL) | 12/12/00 | 170 | 111 | 100 | µg/L | 42 |
| 90MW0028 | MAGNESIUM (TOTAL) | 12/12/00 | 996. J | 988. J | 5000 | µg/L | 0.8 |
| 90MW0028 | MANGANESE (TOTAL) | 12/12/00 | 19 | 18.3 | 15 | µg/L | 3.8 |
| 90MW0028 | NICKEL (TOTAL) | 12/12/00 | 5.30 J | 3.60 J | 40 | µg/L | 38.2 |
| 90MW0028 | SODIUM (TOTAL) | 12/12/00 | 6730 | 6490 | 5000 | µg/L | 3.6 |
| 90MW0028 | 1,2-DIBROMOETHANE (EDB) | 12/12/00 | 1.9 | 1.9 | 1 | µg/L | 0 |
| 90MW0028 | CHLOROFORM | 12/12/00 | 1.3 | 1.2 | 1 | µg/L | 8 |
| 90MW0049 | 1,2-DIBROMOETHANE (EDB) | 10/25/00 | 0.0060 J | 0.0060 J | 0.01 | µg/L | 0 |
| 90MW0053 | 1,2-DIBROMOETHANE (EDB) | 12/18/00 | 0.23 | 0.23 | 0.01 | µg/L | 0 |
| 90MW0053 | 1,2-DIBROMOETHANE (EDB) | 12/18/00 | 0.190 J | 0.180 J | 1 | µg/L | 5.4 |
| 90MW0053 | CHLOROFORM | 12/18/00 | 0.620 J | 0.610 J | 1 | µg/L | 1.6 |
| 90MW0085A | BARIUM (TOTAL) | 12/15/00 | 3.40 J | 3.30 J | 200 | µg/L | 3 |
| 90MW0085A | CALCIUM (TOTAL) | 12/15/00 | 2630 J | 2750 J | 5000 | µg/L | 4.5 |
| 90MW0085A | IRON (TOTAL) | 12/15/00 | 42.9 J | 41.2 J | 100 | µg/L | 4 |
| | | | | | | | |

**Table C-1**
**Field Duplicate Precision Results for Detected Analytes**

| Location | Analyte | Date Sampled | Native Sample Result | Duplicate Sample Result | RL | Units | RPD |
|---|---|---|---|---|---|---|---|
| 90MW0085A | NICKEL (TOTAL) | 12/15/00 | 2.00 J | 2.00 J | 40 | µg/L | 0 |
| 90MW0085A | POTASSIUM (TOTAL) | 12/15/00 | 794 J | 820 J | 5000 | µg/L | 3.2 |
| 90MW0085A | SODIUM (TOTAL) | 12/15/00 | 9770 | 10000 | 5000 | µg/L | 2.3 |
| 90MW0100A | 1,2-DIBROMOETHANE (EDB) | 10/31/00 | 1.01 | 1.07 | 0.05 | µg/L | 5.8 |
| 90PLT01001 | ALKALINITY, TOTAL (AS $CaCO_3$) | 11/30/00 | 10.0 J | 13.9 J | 5 | mg/L | 32.6 |
| 90PLT01001 | NITROGEN | 11/30/00 | 54.4 | 71.5 | 30 | µg/L | 27.2 |
| 90PLT01001 | NITROGEN, NITRATE (AS N) | 11/30/00 | 63.1 | 69 | 3 | µg/L | 8.9 |
| 90PLT01001 | PHOSPHORUS, TOTAL (AS P) | 11/30/00 | 32.1 | 32.1 | 3 | µg/L | 0 |
| 90PLT01001 | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 11/30/00 | 25.9 | 25.9 | 2 | µg/L | 0 |
| 90PLT01001 | DISSOLVED ORGANIC CARBON | 11/30/00 | 0.498 J | ND | 1 | mg/L | NC |
| ECPTP04 | ALKALINITY, TOTAL (AS $CaCO_3$) | 11/14/00 | ND | 19.5 J | 16.5 | mg/L | NC |
| ECPTP04 | NITROGEN, AMMONIA (AS N) | 11/14/00 | 51.4 | 52.5 | 10 | µg/L | 2.1 |
| ECPTP04 | PHOSPHORUS, TOTAL (AS P) | 11/14/00 | 6.1 | 6.1 | 3 | µg/L | 0 |
| ECPTP04 | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 11/14/00 | ND | 0.600 J | 2 | µg/L | NC |
| ECPTP04 | CHLOROPHYLL A | 11/14/00 | 2.1 | 1.8 | 0.1 | µg/L | 15.4 |
| ECPTP04 | TOTAL ORGANIC CARBON | 11/14/00 | 2.3 | 2.3 | 1 | mg/L | 0 |

$CaCO_3$ = calcium carbonate
J = estimated value
mg/L = milligrams per liter
NC = not calculated
ND = not detected
RL = reporting limit
RPD = relative percent difference
µg/L = micrograms per liter

## Laboratory Precision

Laboratory precision is measured by the analysis of MS/MSD samples, laboratory control sample/laboratory control sample duplicates (LCS/LCSDs), and/or laboratory replicate samples.

The result for bromoform in the sample collected at location 90MW0056 was qualified as estimated nondetect (coded UJ) due to noncompliant MS/MSD RPD values. All other RPDs for the MS/MSD analyses, laboratory replicate analyses, and LCS/LCSD analyses were within the acceptance criteria; qualifications were not required.

## Field Accuracy

Field accuracy is assessed through the collection and analysis of EBs and TBs.

Fourteen EB samples were collected and submitted for EDB analyses; nine EB samples were collected and submitted for VOC analyses; four EB samples were collected and submitted for general chemistry analyses; and two EB samples were collected and

submitted for total metals analyses. EB samples were not collected with the extraction well samples or the treatment plant samples because dedicated sampling equipment and ports are used to collect these samples. The results for alkalinity in three samples, total nitrogen in four samples, nitrate in four samples, chromium in one sample, iron in one sample, and nickel in one sample were qualified as nondetect (coded U) at the reported concentrations due to levels in the associated EB samples.

TB samples were submitted with samples for VOC analyses only. TBs were free of target analyte contamination; qualifications were not required.

**Sample Holding Times and Preservation**

All samples collected as part of this sampling event met holding time and preservation requirements; qualifications were not required.

**Instrument Calibration**

Instrument calibration parameters are reviewed for conformance to method and data review criteria according to the technical procedure MMR TECH-055, Analytical Chemistry Data Review (AFCEE 2000).

The analytical results for up to three VOCs in several aqueous samples were either rejected (coded R) or estimated (coded J) as a result of noncompliant calibrations. Acetone, methyl ethyl ketone (MEK), and 1,2-dibromo-3-chloropropane (DBCP) have poor purge efficiencies and, therefore, commonly have initial or continuing calibration response factors (RFs) of less than the acceptance criterion of 0.05. Method OLC02.1 does not set the minimum RF criterion for these compounds. However, data validation guidelines require that all compounds with initial or continuing calibration RFs of less than 0.05 be qualified as rejected (coded R) if nondetect, or estimated (coded J) if detected. In addition, if the percent relative standard deviation (%RSD) of the initial calibration curve and/or the percent difference of the continuing calibration is outside the acceptance criteria, positive and nondetect results are qualified as estimated (coded J or UJ, respectively).

Initial and continuing calibration criteria were acceptable for all EDB, general chemistry, and total metals analyses; qualifications were not required.

**Laboratory Blanks**

The following metals were detected in one or more laboratory blank: aluminum, barium, chromium, cobalt, copper, iron, lead, manganese, nickel, potassium, vanadium, and zinc. The reporting limits (RLs) used for these analytes are often much greater than the actual instrument detection limits (IDLs). The laboratory is required to report all results to the IDL. Thus, the blanks frequently contain low levels of analytes that fall between the IDL and RL. Associated sample data were evaluated against these blank levels. Positive results less than five times the blank levels were considered false positives and qualified as nondetect (coded U) at the reported value.

Contaminants were detected in the associated blanks for the following general chemistry parameters: alkalinity, nitrate, and nitrite. The RLs used for these parameters are often much greater than the actual method detection limits (MDLs). The laboratory is required to report all results to the MDL. Thus, blanks frequently contain low levels of analytes that fall between the MDL and the RL. Associated sample data were evaluated against these blank levels. Positive results less than five times the blank levels were considered false positives and qualified as nondetect (coded U) at the reported value.

Methylene chloride was detected in several laboratory blanks at values greater than the MDL, but less than the RL. Methylene chloride results in 65 associated samples were considered false positives and qualified as nondetect (coded U) at the reported value.

Results for barium, beryllium, cadmium, chromium, cobalt, copper, manganese, nickel, silver, thallium, and vanadium were qualified as estimated (coded J or UJ) due to negative laboratory blank results. These positive and nondetect results are potentially biased low due to baseline instability.

## Matrix Spikes

Ten MS/MSD samples were analyzed with the EDB samples; six MS/MSD samples were analyzed with the VOC samples; and one MS/MSD sample was analyzed with the total metals samples.  MS/MSD percent recoveries were acceptable for all analyses; qualifications were not required.

## Laboratory Control Samples

LCS/LCSD samples were analyzed and reported in data packages when MS/MSD analyses were not designated on the chain of custody.  LCS/LCSD percent recoveries for all analyses were within acceptance criteria; qualifications were not required.

## Internal Standards

Internal standard responses for all analyses were within the acceptance criteria; qualifications were not required.

## Surrogate Spikes

Surrogate recoveries for all organic analyses were within the acceptance criteria; qualifications were not required.

## Summary

In general, the data collected during this sampling event met the established data quality objectives and can be considered valid for decision-making purposes.

All samples were analyzed and reported by the laboratories by the prescribed methods. Any deviations were noted in the laboratory's case narrative and were either accepted or rejected during the data review process.

The completeness goal for valid measurements was met for all parameters except VOCs. Selected data points were rejected (coded R) during the data review process due to QC

nonconformance.  A total of 228 VOC data points were rejected (coded R), resulting in 93 percent completeness for this parameter.  All of the rejected data points were for acetone, MEK, and DBCP calibration noncompliances.  These compounds are not considered contaminants of concern in this investigation.

# APPENDIX D

## Analytical Chemistry Data

**(Hard Copy or Electronic Format – Available on Request)**

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90EW0001 | 90EW0001-02 | 10/24/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 113.47 | ND | 0.005 | 0.01 | µg/L | U | MS-A035803 |
| 90EW0001 | 90EW0001-02 | 10/24/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WG | 113.47 | ND | 0.228 | 1 | µg/L | U | MS-A035804 |
| 90EW0001 | 90EW0001-02 | 10/24/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WG | 113.47 | ND | 0.233 | 1 | µg/L | U | MS-A035804 |
| 90EW0001 | 90EW0001-02 | 10/24/2000 | SW8260 | N1 | BENZENE | WG | 113.47 | ND | 0.354 | 1 | µg/L | U | MS-A035804 |
| 90EW0001 | 90EW0001-02 | 10/24/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WG | 113.47 | ND | 0.128 | 1 | µg/L | U | MS-A035804 |
| 90EW0001 | 90EW0001-02 | 10/24/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WG | 113.47 | ND | 0.157 | 1 | µg/L | U | MS-A035804 |
| 90EW0001 | 90EW0001-02 | 10/24/2000 | SW8260 | N1 | ETHYLBENZENE | WG | 113.47 | ND | 0.196 | 1 | µg/L | U | MS-A035804 |
| 90EW0001 | 90EW0001-02 | 10/24/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WG | 113.47 | ND | 0.53 | 1 | µg/L | U | MS-A035804 |
| 90EW0001 | 90EW0001-02 | 10/24/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WG | 113.47 | ND | 0.245 | 1 | µg/L | U | MS-A035804 |
| 90EW0001 | 90EW0001-02 | 10/24/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WG | 113.47 | ND | 0.195 | 1 | µg/L | U | MS-A035804 |
| 90EW0001 | 90EW0001-02 | 10/24/2000 | SW8260 | N1 | TOLUENE | WG | 113.47 | ND | 0.21 | 1 | µg/L | U | MS-A035804 |
| 90EW0001 | 90EW0001-02 | 10/24/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WG | 113.47 | ND | 0.166 | 1 | µg/L | U | MS-A035804 |
| 90EW0001 | 90EW0001-02 | 10/24/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WG | 113.47 | ND | 0.205 | 1 | µg/L | U | MS-A035804 |
| 90EW0001 | 90EW0001-01 | 10/25/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 113.47 | ND | 0.005 | 0.01 | µg/L | U | MS-A036201 |
| 90EW0001 | 90EW0001-01 | 10/25/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WG | 113.47 | ND | 0.228 | 1 | µg/L | U | MS-A036202 |
| 90EW0001 | 90EW0001-01 | 10/25/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WG | 113.47 | ND | 0.233 | 1 | µg/L | U | MS-A036202 |
| 90EW0001 | 90EW0001-01 | 10/25/2000 | SW8260 | N1 | BENZENE | WG | 113.47 | ND | 0.354 | 1 | µg/L | U | MS-A036202 |
| 90EW0001 | 90EW0001-01 | 10/25/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WG | 113.47 | ND | 0.128 | 1 | µg/L | U | MS-A036202 |
| 90EW0001 | 90EW0001-01 | 10/25/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WG | 113.47 | ND | 0.157 | 1 | µg/L | U | MS-A036202 |
| 90EW0001 | 90EW0001-01 | 10/25/2000 | SW8260 | N1 | ETHYLBENZENE | WG | 113.47 | ND | 0.196 | 1 | µg/L | U | MS-A036202 |
| 90EW0001 | 90EW0001-01 | 10/25/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WG | 113.47 | ND | 0.53 | 1 | µg/L | U | MS-A036202 |
| 90EW0001 | 90EW0001-01 | 10/25/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WG | 113.47 | ND | 0.245 | 1 | µg/L | U | MS-A036202 |
| 90EW0001 | 90EW0001-01 | 10/25/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WG | 113.47 | ND | 0.195 | 1 | µg/L | U | MS-A036202 |
| 90EW0001 | 90EW0001-01 | 10/25/2000 | SW8260 | N1 | TOLUENE | WG | 113.47 | ND | 0.21 | 1 | µg/L | U | MS-A036202 |
| 90EW0001 | 90EW0001-01 | 10/25/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WG | 113.47 | ND | 0.166 | 1 | µg/L | U | MS-A036202 |
| 90EW0001 | 90EW0001-01 | 10/25/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WG | 113.47 | ND | 0.205 | 1 | µg/L | U | MS-A036202 |
| 90EW0002 | 90EW0002-01 | 10/26/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 116 | ND | 0.005 | 0.01 | µg/L | U | MS-A036401 |
| 90EW0002 | 90EW0002-02 | 10/26/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 116 | 0.007 | 0.005 | 0.01 | µg/L | J | MS-A036403 |
| 90EW0002 | 90EW0002-01 | 10/26/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WG | 116 | ND | 0.228 | 1 | µg/L | U | MS-A036402 |
| 90EW0002 | 90EW0002-02 | 10/26/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WG | 116 | ND | 0.228 | 1 | µg/L | U | MS-A036404 |
| 90EW0002 | 90EW0002-01 | 10/26/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WG | 116 | ND | 0.233 | 1 | µg/L | U | MS-A036402 |
| 90EW0002 | 90EW0002-02 | 10/26/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WG | 116 | ND | 0.233 | 1 | µg/L | U | MS-A036404 |
| 90EW0002 | 90EW0002-01 | 10/26/2000 | SW8260 | N1 | BENZENE | WG | 116 | ND | 0.354 | 1 | µg/L | U | MS-A036402 |
| 90EW0002 | 90EW0002-02 | 10/26/2000 | SW8260 | N1 | BENZENE | WG | 116 | ND | 0.354 | 1 | µg/L | U | MS-A036404 |
| 90EW0002 | 90EW0002-01 | 10/26/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WG | 116 | ND | 0.128 | 1 | µg/L | U | MS-A036402 |
| 90EW0002 | 90EW0002-02 | 10/26/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WG | 116 | ND | 0.128 | 1 | µg/L | U | MS-A036404 |
| 90EW0002 | 90EW0002-01 | 10/26/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WG | 116 | ND | 0.157 | 1 | µg/L | U | MS-A036402 |
| 90EW0002 | 90EW0002-02 | 10/26/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WG | 116 | ND | 0.157 | 1 | µg/L | U | MS-A036404 |
| 90EW0002 | 90EW0002-01 | 10/26/2000 | SW8260 | N1 | ETHYLBENZENE | WG | 116 | ND | 0.196 | 1 | µg/L | U | MS-A036402 |
| 90EW0002 | 90EW0002-02 | 10/26/2000 | SW8260 | N1 | ETHYLBENZENE | WG | 116 | ND | 0.196 | 1 | µg/L | U | MS-A036404 |
| 90EW0002 | 90EW0002-01 | 10/26/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WG | 116 | ND | 0.53 | 1 | µg/L | U | MS-A036402 |
| 90EW0002 | 90EW0002-02 | 10/26/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WG | 116 | ND | 0.53 | 1 | µg/L | U | MS-A036404 |
| 90EW0002 | 90EW0002-01 | 10/26/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WG | 116 | ND | 0.245 | 1 | µg/L | U | MS-A036402 |
| 90EW0002 | 90EW0002-02 | 10/26/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WG | 116 | ND | 0.245 | 1 | µg/L | U | MS-A036404 |
| 90EW0002 | 90EW0002-01 | 10/26/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WG | 116 | ND | 0.195 | 1 | µg/L | U | MS-A036402 |
| 90EW0002 | 90EW0002-02 | 10/26/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WG | 116 | ND | 0.195 | 1 | µg/L | U | MS-A036404 |
| 90EW0002 | 90EW0002-01 | 10/26/2000 | SW8260 | N1 | TOLUENE | WG | 116 | ND | 0.21 | 1 | µg/L | U | MS-A036402 |
| 90EW0002 | 90EW0002-02 | 10/26/2000 | SW8260 | N1 | TOLUENE | WG | 116 | ND | 0.21 | 1 | µg/L | U | MS-A036404 |
| 90EW0002 | 90EW0002-01 | 10/26/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WG | 116 | ND | 0.166 | 1 | µg/L | U | MS-A036402 |
| 90EW0002 | 90EW0002-02 | 10/26/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WG | 116 | ND | 0.166 | 1 | µg/L | U | MS-A036404 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90EW0002 | 90EW0002-01 | 10/26/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WG | 116 | ND | 0.205 | 1 | µg/L | U | MS-A036402 |
| 90EW0002 | 90EW0002-02 | 10/26/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WG | 116 | ND | 0.205 | 1 | µg/L | U | MS-A036404 |
| 90EW0003 | 90EW0003-01 | 10/25/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 124.7 | ND | 0.005 | 0.01 | µg/L | U | MS-A035901 |
| 90EW0003 | 90EW0003-02 | 10/25/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 124.7 | ND | 0.005 | 0.01 | µg/L | U | MS-A035903 |
| 90EW0003 | 90EW0003-01 | 10/25/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WG | 124.7 | ND | 0.228 | 1 | µg/L | U | MS-A035902 |
| 90EW0003 | 90EW0003-02 | 10/25/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WG | 124.7 | ND | 0.228 | 1 | µg/L | U | MS-A035904 |
| 90EW0003 | 90EW0003-01 | 10/25/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WG | 124.7 | ND | 0.233 | 1 | µg/L | U | MS-A035902 |
| 90EW0003 | 90EW0003-02 | 10/25/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WG | 124.7 | ND | 0.233 | 1 | µg/L | U | MS-A035904 |
| 90EW0003 | 90EW0003-01 | 10/25/2000 | SW8260 | N1 | BENZENE | WG | 124.7 | ND | 0.354 | 1 | µg/L | U | MS-A035902 |
| 90EW0003 | 90EW0003-02 | 10/25/2000 | SW8260 | N1 | BENZENE | WG | 124.7 | ND | 0.354 | 1 | µg/L | U | MS-A035904 |
| 90EW0003 | 90EW0003-01 | 10/25/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WG | 124.7 | ND | 0.128 | 1 | µg/L | U | MS-A035902 |
| 90EW0003 | 90EW0003-02 | 10/25/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WG | 124.7 | ND | 0.128 | 1 | µg/L | U | MS-A035904 |
| 90EW0003 | 90EW0003-01 | 10/25/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WG | 124.7 | ND | 0.157 | 1 | µg/L | U | MS-A035902 |
| 90EW0003 | 90EW0003-02 | 10/25/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WG | 124.7 | ND | 0.157 | 1 | µg/L | U | MS-A035904 |
| 90EW0003 | 90EW0003-01 | 10/25/2000 | SW8260 | N1 | ETHYLBENZENE | WG | 124.7 | ND | 0.196 | 1 | µg/L | U | MS-A035902 |
| 90EW0003 | 90EW0003-02 | 10/25/2000 | SW8260 | N1 | ETHYLBENZENE | WG | 124.7 | ND | 0.196 | 1 | µg/L | U | MS-A035904 |
| 90EW0003 | 90EW0003-01 | 10/25/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WG | 124.7 | ND | 0.53 | 1 | µg/L | U | MS-A035902 |
| 90EW0003 | 90EW0003-02 | 10/25/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WG | 124.7 | ND | 0.53 | 1 | µg/L | U | MS-A035904 |
| 90EW0003 | 90EW0003-01 | 10/25/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WG | 124.7 | ND | 0.245 | 1 | µg/L | U | MS-A035902 |
| 90EW0003 | 90EW0003-02 | 10/25/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WG | 124.7 | ND | 0.245 | 1 | µg/L | U | MS-A035904 |
| 90EW0003 | 90EW0003-01 | 10/25/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WG | 124.7 | ND | 0.195 | 1 | µg/L | U | MS-A035902 |
| 90EW0003 | 90EW0003-02 | 10/25/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WG | 124.7 | ND | 0.195 | 1 | µg/L | U | MS-A035904 |
| 90EW0003 | 90EW0003-01 | 10/25/2000 | SW8260 | N1 | TOLUENE | WG | 124.7 | ND | 0.21 | 1 | µg/L | U | MS-A035902 |
| 90EW0003 | 90EW0003-02 | 10/25/2000 | SW8260 | N1 | TOLUENE | WG | 124.7 | ND | 0.21 | 1 | µg/L | U | MS-A035904 |
| 90EW0003 | 90EW0003-01 | 10/25/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WG | 124.7 | ND | 0.166 | 1 | µg/L | U | MS-A035902 |
| 90EW0003 | 90EW0003-02 | 10/25/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WG | 124.7 | ND | 0.166 | 1 | µg/L | U | MS-A035904 |
| 90EW0003 | 90EW0003-01 | 10/25/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WG | 124.7 | ND | 0.205 | 1 | µg/L | U | MS-A035902 |
| 90EW0003 | 90EW0003-02 | 10/25/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WG | 124.7 | ND | 0.205 | 1 | µg/L | U | MS-A035904 |
| 90EW0007 | 90EW0007- | 12/15/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 163.78 | ND | 0.0056 | 0.01 | µg/L | U | MS-A047503 |
| 90EW0007 | 90EW0007- | 12/15/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 163.78 | 0.04 | 0.0048 | 0.01 | µg/L | | MS-A047503 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 163.78 | ND | 0.09 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 163.78 | ND | 0.13 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 163.78 | ND | 0.11 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 163.78 | ND | 0.07 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 163.78 | ND | 0.09 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 163.78 | ND | 0.14 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 163.78 | - | - | - | µg/L | R | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 163.78 | ND | 0.1 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 163.78 | ND | 0.08 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 163.78 | ND | 0.09 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 163.78 | ND | 0.15 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 163.78 | ND | 0.09 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 163.78 | ND | 0.1 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | 2-HEXANONE | WG | 163.78 | ND | 0.83 | 5 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | ACETONE | WG | 163.78 | - | - | - | µg/L | R | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | BENZENE | WG | 163.78 | ND | 0.11 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 163.78 | ND | 0.1 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 163.78 | ND | 0.07 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | BROMOFORM | WG | 163.78 | ND | 0.19 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | BROMOMETHANE | WG | 163.78 | ND | 0.15 | 1 | µg/L | U | MS-A047504 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 163.78 | ND | 0.08 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 163.78 | ND | 0.08 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | CHLOROBENZENE | WG | 163.78 | ND | 0.1 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | CHLOROETHANE | WG | 163.78 | ND | 0.08 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | CHLOROFORM | WG | 163.78 | 1.2 | 0.08 | 1 | µg/L |  | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | CHLOROMETHANE | WG | 163.78 | ND | 0.1 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 163.78 | ND | 0.08 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 163.78 | ND | 0.07 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 163.78 | ND | 0.09 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | ETHYLBENZENE | WG | 163.78 | ND | 0.1 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 163.78 | - | - | - | µg/L | R | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 163.78 | ND | 0.72 | 5 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 163.78 | ND | 0.09 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 163.78 | ND | 0.56 | 10 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | STYRENE | WG | 163.78 | ND | 0.12 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 163.78 | ND | 0.11 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | TOLUENE | WG | 163.78 | ND | 0.09 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 163.78 | ND | 0.09 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 163.78 | ND | 0.08 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 163.78 | ND | 0.09 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 163.78 | ND | 0.08 | 1 | µg/L | U | MS-A047504 |
| 90EW0007 | 90EW0007- | 12/15/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 163.78 | ND | 0.11 | 1 | µg/L | U | MS-A047504 |
| 90EW0008 | 90EW0008- | 12/15/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 163.25 | ND | 0.011 | 0.02 | µg/L | U | MS-A047505 |
| 90EW0008 | 90EW0008- | 12/15/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 163.25 | 0.45 | 0.0096 | 0.02 | µg/L | J | MS-A047505 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 163.25 | ND | 0.09 | 1 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 163.25 | ND | 0.13 | 1 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 163.25 | ND | 0.11 | 1 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 163.25 | ND | 0.07 | 1 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 163.25 | ND | 0.09 | 1 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 163.25 | ND | 0.14 | 1 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 163.25 | - | - | - | µg/L | R | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 163.25 | 0.45 | 0.1 | 1 | µg/L | J | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 163.25 | ND | 0.08 | 1 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 163.25 | ND | 0.09 | 1 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 163.25 | ND | 0.15 | 1 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 163.25 | ND | 0.09 | 1 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 163.25 | ND | 0.1 | 1 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | 2-HEXANONE | WG | 163.25 | ND | 0.83 | 5 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | ACETONE | WG | 163.25 | - | - | - | µg/L | R | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | BENZENE | WG | 163.25 | ND | 0.11 | 1 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 163.25 | ND | 0.1 | 1 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 163.25 | ND | 0.07 | 1 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | BROMOFORM | WG | 163.25 | ND | 0.19 | 1 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | BROMOMETHANE | WG | 163.25 | ND | 0.15 | 1 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 163.25 | ND | 0.08 | 1 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 163.25 | ND | 0.08 | 1 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | CHLOROBENZENE | WG | 163.25 | ND | 0.1 | 1 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | CHLOROETHANE | WG | 163.25 | ND | 0.08 | 1 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | CHLOROFORM | WG | 163.25 | 1.5 | 0.08 | 1 | µg/L |  | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | CHLOROMETHANE | WG | 163.25 | ND | 0.1 | 1 | µg/L | U | MS-A047506 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 163.25 | ND | 0.08 | 1 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 163.25 | ND | 0.07 | 1 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 163.25 | ND | 0.09 | 1 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | ETHYLBENZENE | WG | 163.25 | ND | 0.1 | 1 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 163.25 | - | - | - | µg/L | R | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 163.25 | ND | 0.72 | 5 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 163.25 | ND | 0.09 | 1 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 163.25 | ND | 0.71 | 7.4 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | STYRENE | WG | 163.25 | ND | 0.12 | 1 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 163.25 | ND | 0.11 | 1 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | TOLUENE | WG | 163.25 | ND | 0.09 | 1 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 163.25 | ND | 0.09 | 1 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 163.25 | ND | 0.08 | 1 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 163.25 | ND | 0.09 | 1 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 163.25 | ND | 0.08 | 1 | µg/L | U | MS-A047506 |
| 90EW0008 | 90EW0008- | 12/15/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 163.25 | ND | 0.11 | 1 | µg/L | U | MS-A047506 |
| 90EW0009 | 90EW0009- | 12/15/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 172.58 | ND | 0.028 | 0.05 | µg/L | U | MS-A047601 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | E504 | FD1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 172.58 | ND | 0.028 | 0.05 | µg/L | U | MS-A047603 |
| 90EW0009 | 90EW0009- | 12/15/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 172.58 | 1.1 | 0.024 | 0.05 | µg/L | J | MS-A047601 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | E504 | FD1 | 1,2-DIBROMOETHANE (EDB) | WG | 172.58 | 1.1 | 0.024 | 0.05 | µg/L | J | MS-A047603 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 172.58 | ND | 0.09 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | 1,1,1-TRICHLOROETHANE | WG | 172.58 | ND | 0.09 | 1 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 172.58 | ND | 0.13 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | 1,1,2,2-TETRACHLOROETHANE | WG | 172.58 | ND | 0.13 | 1 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 172.58 | ND | 0.11 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | 1,1,2-TRICHLOROETHANE | WG | 172.58 | ND | 0.11 | 1 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 172.58 | ND | 0.07 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | 1,1-DICHLOROETHANE | WG | 172.58 | ND | 0.07 | 1 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 172.58 | ND | 0.09 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | 1,1-DICHLOROETHENE | WG | 172.58 | ND | 0.09 | 1 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 172.58 | ND | 0.14 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | 1,2,4-TRICHLOROBENZENE | WG | 172.58 | ND | 0.14 | 1 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 172.58 | - | - | - | µg/L | R | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 172.58 | - | - | - | µg/L | R | MS-A047602 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 172.58 | 1 | 0.1 | 1 | µg/L |  | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | 1,2-DIBROMOETHANE (EDB) | WG | 172.58 | 1 | 0.1 | 1 | µg/L |  | MS-A047604 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | 1,2-DICHLOROBENZENE | WG | 172.58 | ND | 0.08 | 1 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 172.58 | ND | 0.08 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 172.58 | ND | 0.09 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | 1,2-DICHLOROETHANE | WG | 172.58 | ND | 0.09 | 1 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 172.58 | ND | 0.15 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | 1,2-DICHLOROPROPANE | WG | 172.58 | ND | 0.15 | 1 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 172.58 | ND | 0.09 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | 1,3-DICHLOROBENZENE | WG | 172.58 | ND | 0.09 | 1 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 172.58 | ND | 0.1 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | 1,4-DICHLOROBENZENE | WG | 172.58 | ND | 0.1 | 1 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | 2-HEXANONE | WG | 172.58 | ND | 0.83 | 5 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | 2-HEXANONE | WG | 172.58 | ND | 0.83 | 5 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | ACETONE | WG | 172.58 | - | - | - | µg/L | R | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | ACETONE | WG | 172.58 | - | - | - | µg/L | R | MS-A047604 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | BENZENE | WG | 172.58 | 6 | 0.11 | 1 | µg/L | | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | BENZENE | WG | 172.58 | 6 | 0.11 | 1 | µg/L | | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 172.58 | ND | 0.1 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | BROMOCHLOROMETHANE | WG | 172.58 | ND | 0.1 | 1 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 172.58 | ND | 0.07 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | BROMODICHLOROMETHANE | WG | 172.58 | ND | 0.07 | 1 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | BROMOFORM | WG | 172.58 | ND | 0.19 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | BROMOFORM | WG | 172.58 | ND | 0.19 | 1 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | BROMOMETHANE | WG | 172.58 | ND | 0.15 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | BROMOMETHANE | WG | 172.58 | ND | 0.15 | 1 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 172.58 | ND | 0.08 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | CARBON DISULFIDE | WG | 172.58 | ND | 0.08 | 1 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 172.58 | ND | 0.08 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | CARBON TETRACHLORIDE | WG | 172.58 | ND | 0.08 | 1 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | CHLOROBENZENE | WG | 172.58 | ND | 0.1 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | CHLOROBENZENE | WG | 172.58 | ND | 0.1 | 1 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | CHLOROETHANE | WG | 172.58 | ND | 0.08 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | CHLOROETHANE | WG | 172.58 | ND | 0.08 | 1 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | CHLOROFORM | WG | 172.58 | 1 | 0.08 | 1 | µg/L | | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | CHLOROFORM | WG | 172.58 | 1 | 0.08 | 1 | µg/L | | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | CHLOROMETHANE | WG | 172.58 | ND | 0.1 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | CHLOROMETHANE | WG | 172.58 | ND | 0.1 | 1 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 172.58 | ND | 0.08 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | CIS-1,2-DICHLOROETHENE | WG | 172.58 | ND | 0.08 | 1 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 172.58 | ND | 0.07 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | CIS-1,3-DICHLOROPROPENE | WG | 172.58 | ND | 0.07 | 1 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 172.58 | ND | 0.09 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | DIBROMOCHLOROMETHANE | WG | 172.58 | ND | 0.09 | 1 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | ETHYLBENZENE | WG | 172.58 | ND | 0.1 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | ETHYLBENZENE | WG | 172.58 | ND | 0.1 | 1 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 172.58 | - | - | - | µg/L | R | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 172.58 | - | - | - | µg/L | R | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 172.58 | ND | 0.72 | 5 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 172.58 | ND | 0.72 | 5 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 172.58 | ND | 0.09 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 172.58 | ND | 0.09 | 1 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 172.58 | ND | 0.85 | 7.4 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | METHYLENE CHLORIDE | WG | 172.58 | ND | 0.93 | 7.4 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | STYRENE | WG | 172.58 | ND | 0.12 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | STYRENE | WG | 172.58 | ND | 0.12 | 1 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 172.58 | ND | 0.11 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | TETRACHLOROETHENE(PCE) | WG | 172.58 | ND | 0.11 | 1 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | TOLUENE | WG | 172.58 | ND | 0.09 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | TOLUENE | WG | 172.58 | ND | 0.09 | 1 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 172.58 | ND | 0.09 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | TRANS-1,2-DICHLOROETHENE | WG | 172.58 | ND | 0.09 | 1 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 172.58 | ND | 0.08 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | TRANS-1,3-DICHLOROPROPENE | WG | 172.58 | ND | 0.08 | 1 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 172.58 | ND | 0.09 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | TRICHLOROETHENE(TCE) | WG | 172.58 | ND | 0.09 | 1 | µg/L | U | MS-A047604 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 172.58 | ND | 0.08 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | VINYL CHLORIDE | WG | 172.58 | ND | 0.08 | 1 | µg/L | U | MS-A047604 |
| 90EW0009 | 90EW0009- | 12/15/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 172.58 | ND | 0.11 | 1 | µg/L | U | MS-A047602 |
| 90EW0009 | 90EW0009-FD | 12/15/2000 | CVOL | FD1 | XYLENES, TOTAL | WG | 172.58 | ND | 0.11 | 1 | µg/L | U | MS-A047604 |
| 90EW0011 | 90EW0011- | 12/15/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 162.35 | ND | 0.056 | 0.1 | µg/L | U | MS-A048203 |
| 90EW0011 | 90EW0011- | 12/15/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 162.35 | 2.1 | 0.048 | 0.1 | µg/L | J | MS-A048203 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 162.35 | ND | 0.09 | 1 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 162.35 | ND | 0.13 | 1 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 162.35 | ND | 0.11 | 1 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 162.35 | ND | 0.07 | 1 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 162.35 | ND | 0.09 | 1 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 162.35 | ND | 0.14 | 1 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 162.35 | - | - | - | µg/L | R | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 162.35 | 2.2 | 0.1 | 1 | µg/L | | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 162.35 | ND | 0.08 | 1 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 162.35 | ND | 0.09 | 1 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 162.35 | ND | 0.15 | 1 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 162.35 | ND | 0.09 | 1 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 162.35 | ND | 0.1 | 1 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | 2-HEXANONE | WG | 162.35 | ND | 0.83 | 5 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | ACETONE | WG | 162.35 | - | - | - | µg/L | R | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | BENZENE | WG | 162.35 | 13 | 0.11 | 1 | µg/L | | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 162.35 | ND | 0.1 | 1 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 162.35 | ND | 0.07 | 1 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | BROMOFORM | WG | 162.35 | ND | 0.19 | 1 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | BROMOMETHANE | WG | 162.35 | ND | 0.15 | 1 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 162.35 | ND | 0.08 | 1 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 162.35 | ND | 0.08 | 1 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | CHLOROBENZENE | WG | 162.35 | ND | 0.1 | 1 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | CHLOROETHANE | WG | 162.35 | ND | 0.08 | 1 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | CHLOROFORM | WG | 162.35 | 0.86 | 0.08 | 1 | µg/L | J | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | CHLOROMETHANE | WG | 162.35 | ND | 0.1 | 1 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 162.35 | ND | 0.08 | 1 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 162.35 | ND | 0.07 | 1 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 162.35 | ND | 0.09 | 1 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | ETHYLBENZENE | WG | 162.35 | ND | 0.1 | 1 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 162.35 | - | - | - | µg/L | R | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 162.35 | ND | 0.72 | 5 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 162.35 | ND | 0.09 | 1 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 162.35 | ND | 1.5 | 7.4 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | STYRENE | WG | 162.35 | ND | 0.12 | 1 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 162.35 | ND | 0.11 | 1 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | TOLUENE | WG | 162.35 | ND | 0.09 | 1 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 162.35 | ND | 0.09 | 1 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 162.35 | ND | 0.08 | 1 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 162.35 | ND | 0.09 | 1 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 162.35 | ND | 0.08 | 1 | µg/L | U | MS-A048204 |
| 90EW0011 | 90EW0011- | 12/15/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 162.35 | ND | 0.11 | 1 | µg/L | U | MS-A048204 |
| 90EW0012 | 90EW0012- | 12/15/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 163.4 | ND | 0.28 | 0.5 | µg/L | U | MS-A048205 |
| 90EW0012 | 90EW0012- | 12/15/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 163.4 | 10 | 0.24 | 0.5 | µg/L | | MS-A048205 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 163.4 | ND | 0.36 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 163.4 | ND | 0.52 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 163.4 | ND | 0.44 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 163.4 | ND | 0.28 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 163.4 | ND | 0.36 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 163.4 | ND | 0.56 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 163.4 | - | - | - | µg/L | R | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 163.4 | 9.6 | 0.4 | 4 | µg/L | | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 163.4 | ND | 0.32 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 163.4 | ND | 0.36 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 163.4 | ND | 0.6 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 163.4 | ND | 0.36 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 163.4 | ND | 0.4 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | 2-HEXANONE | WG | 163.4 | ND | 3.3 | 20 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | ACETONE | WG | 163.4 | - | - | - | µg/L | R | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | BENZENE | WG | 163.4 | 71 | 0.44 | 4 | µg/L | | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 163.4 | ND | 0.4 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 163.4 | ND | 0.28 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | BROMOFORM | WG | 163.4 | ND | 0.76 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | BROMOMETHANE | WG | 163.4 | ND | 0.6 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 163.4 | ND | 0.32 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 163.4 | ND | 0.32 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | CHLOROBENZENE | WG | 163.4 | ND | 0.4 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | CHLOROETHANE | WG | 163.4 | ND | 0.32 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | CHLOROFORM | WG | 163.4 | ND | 0.32 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | CHLOROMETHANE | WG | 163.4 | ND | 0.4 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 163.4 | ND | 0.32 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 163.4 | ND | 0.28 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 163.4 | ND | 0.36 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | ETHYLBENZENE | WG | 163.4 | ND | 0.4 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 163.4 | - | - | - | µg/L | R | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 163.4 | ND | 2.9 | 20 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 163.4 | ND | 0.36 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 163.4 | ND | 3.4 | 40 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | STYRENE | WG | 163.4 | ND | 0.48 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 163.4 | ND | 0.44 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | TOLUENE | WG | 163.4 | ND | 0.36 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 163.4 | ND | 0.36 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 163.4 | ND | 0.32 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 163.4 | ND | 0.36 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 163.4 | ND | 0.32 | 4 | µg/L | U | MS-A048206 |
| 90EW0012 | 90EW0012- | 12/15/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 163.4 | ND | 0.44 | 4 | µg/L | U | MS-A048206 |
| 90EW0013 | 90EW0013- | 12/18/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 171.11 | ND | 0.11 | 0.2 | µg/L | U | MS-A050601 |
| 90EW0013 | 90EW0013- | 12/18/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 171.11 | 4.7 | 0.096 | 0.2 | µg/L | | MS-A050601 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 171.11 | ND | 0.09 | 1 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 171.11 | ND | 0.13 | 1 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 171.11 | ND | 0.11 | 1 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 171.11 | ND | 0.07 | 1 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 171.11 | ND | 0.09 | 1 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 171.11 | ND | 0.14 | 1 | µg/L | U | MS-A050602 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 171.11 | - | - | - | µg/L | R | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 171.11 | 4.5 | 0.1 | 1 | µg/L | | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 171.11 | ND | 0.08 | 1 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 171.11 | ND | 0.09 | 1 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 171.11 | ND | 0.15 | 1 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 171.11 | ND | 0.09 | 1 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 171.11 | ND | 0.1 | 1 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | 2-HEXANONE | WG | 171.11 | ND | 0.83 | 5 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | ACETONE | WG | 171.11 | - | - | - | µg/L | R | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | BENZENE | WG | 171.11 | 17 | 0.11 | 1 | µg/L | | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 171.11 | ND | 0.1 | 1 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 171.11 | ND | 0.07 | 1 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | BROMOFORM | WG | 171.11 | ND | 0.19 | 1 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | BROMOMETHANE | WG | 171.11 | ND | 0.15 | 1 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 171.11 | ND | 0.08 | 1 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 171.11 | ND | 0.08 | 1 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | CHLOROBENZENE | WG | 171.11 | ND | 0.1 | 1 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | CHLOROETHANE | WG | 171.11 | ND | 0.08 | 1 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | CHLOROFORM | WG | 171.11 | 1.1 | 0.08 | 1 | µg/L | | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | CHLOROMETHANE | WG | 171.11 | ND | 0.1 | 1 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 171.11 | ND | 0.08 | 1 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 171.11 | ND | 0.07 | 1 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 171.11 | ND | 0.09 | 1 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | ETHYLBENZENE | WG | 171.11 | ND | 0.1 | 1 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 171.11 | - | - | - | µg/L | R | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 171.11 | ND | 0.72 | 5 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 171.11 | ND | 0.09 | 1 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 171.11 | ND | 0.08 | 2 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | STYRENE | WG | 171.11 | ND | 0.12 | 1 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 171.11 | ND | 0.11 | 1 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | TOLUENE | WG | 171.11 | ND | 0.09 | 1 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 171.11 | ND | 0.09 | 1 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 171.11 | ND | 0.08 | 1 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 171.11 | ND | 0.09 | 1 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 171.11 | ND | 0.08 | 1 | µg/L | U | MS-A050602 |
| 90EW0013 | 90EW0013- | 12/18/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 171.11 | ND | 0.11 | 1 | µg/L | U | MS-A050602 |
| 90EW0014 | 90EW0014- | 12/18/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 176.8 | ND | 0.028 | 0.05 | µg/L | U | MS-A048301 |
| 90EW0014 | 90EW0014- | 12/18/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 176.8 | 0.89 | 0.024 | 0.05 | µg/L | | MS-A048301 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 176.8 | ND | 0.09 | 1 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 176.8 | ND | 0.13 | 1 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 176.8 | ND | 0.11 | 1 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 176.8 | ND | 0.07 | 1 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 176.8 | ND | 0.09 | 1 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 176.8 | ND | 0.14 | 1 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 176.8 | - | - | - | µg/L | R | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 176.8 | 0.81 | 0.1 | 1 | µg/L | J | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 176.8 | ND | 0.08 | 1 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 176.8 | ND | 0.09 | 1 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 176.8 | ND | 0.15 | 1 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 176.8 | ND | 0.09 | 1 | µg/L | U | MS-A048302 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 176.8 | ND | 0.1 | 1 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | 2-HEXANONE | WG | 176.8 | ND | 0.83 | 5 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | ACETONE | WG | 176.8 | - | - | - | µg/L | R | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | BENZENE | WG | 176.8 | 2.5 | 0.11 | 1 | µg/L | | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 176.8 | ND | 0.1 | 1 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 176.8 | ND | 0.07 | 1 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | BROMOFORM | WG | 176.8 | ND | 0.19 | 1 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | BROMOMETHANE | WG | 176.8 | ND | 0.15 | 1 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 176.8 | ND | 0.08 | 1 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 176.8 | ND | 0.08 | 1 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | CHLOROBENZENE | WG | 176.8 | ND | 0.1 | 1 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | CHLOROETHANE | WG | 176.8 | ND | 0.08 | 1 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | CHLOROFORM | WG | 176.8 | 1.2 | 0.08 | 1 | µg/L | | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | CHLOROMETHANE | WG | 176.8 | ND | 0.1 | 1 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 176.8 | ND | 0.08 | 1 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 176.8 | ND | 0.07 | 1 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 176.8 | ND | 0.09 | 1 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | ETHYLBENZENE | WG | 176.8 | ND | 0.1 | 1 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 176.8 | - | - | - | µg/L | R | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 176.8 | ND | 0.72 | 5 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 176.8 | ND | 0.09 | 1 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 176.8 | ND | 0.8 | 5.7 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | STYRENE | WG | 176.8 | ND | 0.12 | 1 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 176.8 | ND | 0.11 | 1 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | TOLUENE | WG | 176.8 | ND | 0.09 | 1 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 176.8 | ND | 0.09 | 1 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 176.8 | ND | 0.08 | 1 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 176.8 | ND | 0.09 | 1 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 176.8 | ND | 0.08 | 1 | µg/L | U | MS-A048302 |
| 90EW0014 | 90EW0014- | 12/18/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 176.8 | ND | 0.11 | 1 | µg/L | U | MS-A048302 |
| 90EW0015 | 90EW0015- | 12/18/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 177.73 | ND | 0.056 | 0.1 | µg/L | U | MS-A048303 |
| 90EW0015 | 90EW0015- | 12/18/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 177.73 | 3.3 | 0.048 | 0.1 | µg/L | | MS-A048303 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 177.73 | ND | 0.09 | 1 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 177.73 | ND | 0.13 | 1 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 177.73 | ND | 0.11 | 1 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 177.73 | ND | 0.07 | 1 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 177.73 | ND | 0.09 | 1 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 177.73 | ND | 0.14 | 1 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 177.73 | - | - | - | µg/L | R | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 177.73 | 3.1 | 0.1 | 1 | µg/L | | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 177.73 | ND | 0.08 | 1 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 177.73 | ND | 0.09 | 1 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 177.73 | ND | 0.15 | 1 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 177.73 | ND | 0.09 | 1 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 177.73 | ND | 0.1 | 1 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | 2-HEXANONE | WG | 177.73 | ND | 0.83 | 5 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | ACETONE | WG | 177.73 | - | - | - | µg/L | R | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | BENZENE | WG | 177.73 | 2.9 | 0.11 | 1 | µg/L | | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 177.73 | ND | 0.1 | 1 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 177.73 | ND | 0.07 | 1 | µg/L | U | MS-A048304 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | BROMOFORM | WG | 177.73 | ND | 0.19 | 1 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | BROMOMETHANE | WG | 177.73 | ND | 0.15 | 1 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 177.73 | ND | 0.08 | 1 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 177.73 | ND | 0.08 | 1 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | CHLOROBENZENE | WG | 177.73 | ND | 0.1 | 1 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | CHLOROETHANE | WG | 177.73 | ND | 0.08 | 1 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | CHLOROFORM | WG | 177.73 | 1.2 | 0.08 | 1 | µg/L | | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | CHLOROMETHANE | WG | 177.73 | ND | 0.1 | 1 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 177.73 | ND | 0.08 | 1 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 177.73 | ND | 0.07 | 1 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 177.73 | ND | 0.09 | 1 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | ETHYLBENZENE | WG | 177.73 | ND | 0.1 | 1 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 177.73 | - | - | - | µg/L | R | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 177.73 | ND | 0.72 | 5 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 177.73 | ND | 0.09 | 1 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 177.73 | ND | 0.66 | 5.7 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | STYRENE | WG | 177.73 | ND | 0.12 | 1 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 177.73 | ND | 0.11 | 1 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | TOLUENE | WG | 177.73 | ND | 0.09 | 1 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 177.73 | ND | 0.09 | 1 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 177.73 | ND | 0.08 | 1 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 177.73 | ND | 0.09 | 1 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 177.73 | ND | 0.08 | 1 | µg/L | U | MS-A048304 |
| 90EW0015 | 90EW0015- | 12/18/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 177.73 | ND | 0.11 | 1 | µg/L | U | MS-A048304 |
| 90EW0016 | 90EW0016- | 12/18/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 177.65 | ND | 0.11 | 0.2 | µg/L | U | MS-A050301 |
| 90EW0016 | 90EW0016- | 12/18/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 177.65 | 5 | 0.096 | 0.2 | µg/L | | MS-A050301 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 177.65 | ND | 0.09 | 1 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 177.65 | ND | 0.13 | 1 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 177.65 | ND | 0.11 | 1 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 177.65 | ND | 0.07 | 1 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 177.65 | ND | 0.09 | 1 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 177.65 | ND | 0.14 | 1 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 177.65 | - | - | - | µg/L | R | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 177.65 | 5 | 0.1 | 1 | µg/L | | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 177.65 | ND | 0.08 | 1 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 177.65 | ND | 0.09 | 1 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 177.65 | ND | 0.15 | 1 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 177.65 | ND | 0.09 | 1 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 177.65 | ND | 0.1 | 1 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | 2-HEXANONE | WG | 177.65 | ND | 0.83 | 5 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | ACETONE | WG | 177.65 | - | - | - | µg/L | R | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | BENZENE | WG | 177.65 | 1.3 | 0.11 | 1 | µg/L | | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 177.65 | ND | 0.1 | 1 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 177.65 | ND | 0.07 | 1 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | BROMOFORM | WG | 177.65 | ND | 0.19 | 1 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | BROMOMETHANE | WG | 177.65 | ND | 0.15 | 1 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 177.65 | ND | 0.08 | 1 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 177.65 | ND | 0.08 | 1 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | CHLOROBENZENE | WG | 177.65 | ND | 0.1 | 1 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | CHLOROETHANE | WG | 177.65 | ND | 0.08 | 1 | µg/L | U | MS-A050302 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | CHLOROFORM | WG | 177.65 | 1.1 | 0.08 | 1 | µg/L | | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | CHLOROMETHANE | WG | 177.65 | ND | 0.1 | 1 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 177.65 | ND | 0.08 | 1 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 177.65 | ND | 0.07 | 1 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 177.65 | ND | 0.09 | 1 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | ETHYLBENZENE | WG | 177.65 | ND | 0.1 | 1 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 177.65 | - | - | - | µg/L | R | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 177.65 | ND | 0.72 | 5 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 177.65 | ND | 0.09 | 1 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 177.65 | ND | 0.99 | 5.7 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | STYRENE | WG | 177.65 | ND | 0.12 | 1 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 177.65 | ND | 0.11 | 1 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | TOLUENE | WG | 177.65 | ND | 0.09 | 1 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 177.65 | ND | 0.09 | 1 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 177.65 | ND | 0.08 | 1 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 177.65 | ND | 0.09 | 1 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 177.65 | ND | 0.08 | 1 | µg/L | U | MS-A050302 |
| 90EW0016 | 90EW0016- | 12/18/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 177.65 | ND | 0.11 | 1 | µg/L | U | MS-A050302 |
| 90EW0017 | 90EW0017- | 12/18/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 165.82 | ND | 0.11 | 0.2 | µg/L | U | MS-A050603 |
| 90EW0017 | 90EW0017- | 12/18/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 165.82 | 8.7 | 0.096 | 0.2 | µg/L | | MS-A050603 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 165.82 | ND | 0.09 | 1 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 165.82 | ND | 0.13 | 1 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 165.82 | ND | 0.11 | 1 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 165.82 | ND | 0.07 | 1 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 165.82 | ND | 0.09 | 1 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 165.82 | ND | 0.14 | 1 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 165.82 | - | - | - | µg/L | R | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 165.82 | 9.1 | 0.1 | 1 | µg/L | | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 165.82 | ND | 0.08 | 1 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 165.82 | ND | 0.09 | 1 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 165.82 | ND | 0.15 | 1 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 165.82 | ND | 0.09 | 1 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 165.82 | ND | 0.1 | 1 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | 2-HEXANONE | WG | 165.82 | ND | 0.83 | 5 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | ACETONE | WG | 165.82 | - | - | - | µg/L | R | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | BENZENE | WG | 165.82 | 1.4 | 0.11 | 1 | µg/L | | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 165.82 | ND | 0.1 | 1 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 165.82 | ND | 0.07 | 1 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | BROMOFORM | WG | 165.82 | ND | 0.19 | 1 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | BROMOMETHANE | WG | 165.82 | ND | 0.15 | 1 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 165.82 | ND | 0.08 | 1 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 165.82 | ND | 0.08 | 1 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | CHLOROBENZENE | WG | 165.82 | ND | 0.1 | 1 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | CHLOROETHANE | WG | 165.82 | ND | 0.08 | 1 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | CHLOROFORM | WG | 165.82 | 1.1 | 0.08 | 1 | µg/L | | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | CHLOROMETHANE | WG | 165.82 | ND | 0.1 | 1 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 165.82 | ND | 0.08 | 1 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 165.82 | ND | 0.07 | 1 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 165.82 | ND | 0.09 | 1 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | ETHYLBENZENE | WG | 165.82 | ND | 0.1 | 1 | µg/L | U | MS-A050604 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 165.82 | - | - | - | µg/L | R | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 165.82 | ND | 0.72 | 5 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 165.82 | ND | 0.09 | 1 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 165.82 | ND | 0.77 | 5.7 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | STYRENE | WG | 165.82 | ND | 0.12 | 1 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 165.82 | ND | 0.11 | 1 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | TOLUENE | WG | 165.82 | ND | 0.09 | 1 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 165.82 | ND | 0.09 | 1 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 165.82 | ND | 0.08 | 1 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 165.82 | ND | 0.09 | 1 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 165.82 | ND | 0.08 | 1 | µg/L | U | MS-A050604 |
| 90EW0017 | 90EW0017- | 12/18/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 165.82 | ND | 0.11 | 1 | µg/L | U | MS-A050604 |
| 90EW0018 | 90EW0018- | 12/18/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 161.84 | ND | 0.11 | 0.2 | µg/L | U | MS-A050605 |
| 90EW0018 | 90EW0018- | 12/18/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 161.84 | 4.3 | 0.096 | 0.2 | µg/L | | MS-A050605 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 161.84 | ND | 0.09 | 1 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 161.84 | ND | 0.13 | 1 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 161.84 | ND | 0.11 | 1 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 161.84 | ND | 0.07 | 1 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 161.84 | ND | 0.09 | 1 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 161.84 | ND | 0.14 | 1 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 161.84 | - | - | - | µg/L | R | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 161.84 | 4.3 | 0.1 | 1 | µg/L | | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 161.84 | ND | 0.08 | 1 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 161.84 | ND | 0.09 | 1 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 161.84 | ND | 0.15 | 1 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 161.84 | ND | 0.09 | 1 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 161.84 | ND | 0.1 | 1 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | 2-HEXANONE | WG | 161.84 | ND | 0.83 | 5 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | ACETONE | WG | 161.84 | - | - | - | µg/L | R | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | BENZENE | WG | 161.84 | 5.3 | 0.11 | 1 | µg/L | | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 161.84 | ND | 0.1 | 1 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 161.84 | ND | 0.07 | 1 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | BROMOFORM | WG | 161.84 | ND | 0.19 | 1 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | BROMOMETHANE | WG | 161.84 | ND | 0.15 | 1 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 161.84 | ND | 0.08 | 1 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 161.84 | ND | 0.08 | 1 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | CHLOROBENZENE | WG | 161.84 | ND | 0.1 | 1 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | CHLOROETHANE | WG | 161.84 | ND | 0.08 | 1 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | CHLOROFORM | WG | 161.84 | 1 | 0.08 | 1 | µg/L | | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | CHLOROMETHANE | WG | 161.84 | ND | 0.1 | 1 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 161.84 | ND | 0.08 | 1 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 161.84 | ND | 0.07 | 1 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 161.84 | ND | 0.09 | 1 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | ETHYLBENZENE | WG | 161.84 | ND | 0.1 | 1 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 161.84 | - | - | - | µg/L | R | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 161.84 | ND | 0.72 | 5 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 161.84 | ND | 0.09 | 1 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 161.84 | ND | 0.7 | 5.7 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | STYRENE | WG | 161.84 | ND | 0.12 | 1 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 161.84 | ND | 0.11 | 1 | µg/L | U | MS-A050606 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | TOLUENE | WG | 161.84 | ND | 0.09 | 1 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 161.84 | ND | 0.09 | 1 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 161.84 | ND | 0.08 | 1 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 161.84 | ND | 0.09 | 1 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 161.84 | ND | 0.08 | 1 | µg/L | U | MS-A050606 |
| 90EW0018 | 90EW0018- | 12/18/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 161.84 | ND | 0.11 | 1 | µg/L | U | MS-A050606 |
| 90EW0019 | 90EW0019- | 12/19/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 174.5 | ND | 0.28 | 0.5 | µg/L | U | MS-A050901 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | E504 | FD1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 174.5 | ND | 0.28 | 0.5 | µg/L | U | MS-A050903 |
| 90EW0019 | 90EW0019- | 12/19/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 174.5 | 15 | 0.24 | 0.5 | µg/L | | MS-A050901 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | E504 | FD1 | 1,2-DIBROMOETHANE (EDB) | WG | 174.5 | 16 | 0.24 | 0.5 | µg/L | | MS-A050903 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 174.5 | ND | 0.09 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | 1,1,1-TRICHLOROETHANE | WG | 174.5 | ND | 0.09 | 1 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 174.5 | ND | 0.13 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | 1,1,2,2-TETRACHLOROETHANE | WG | 174.5 | ND | 0.13 | 1 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 174.5 | ND | 0.11 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | 1,1,2-TRICHLOROETHANE | WG | 174.5 | ND | 0.11 | 1 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 174.5 | ND | 0.07 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | 1,1-DICHLOROETHANE | WG | 174.5 | ND | 0.07 | 1 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 174.5 | ND | 0.09 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | 1,1-DICHLOROETHENE | WG | 174.5 | ND | 0.09 | 1 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 174.5 | ND | 0.14 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | 1,2,4-TRICHLOROBENZENE | WG | 174.5 | ND | 0.14 | 1 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 174.5 | - | - | - | µg/L | R | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 174.5 | - | - | - | µg/L | R | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 174.5 | 16 | 0.1 | 1 | µg/L | | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | 1,2-DIBROMOETHANE (EDB) | WG | 174.5 | 15 | 0.1 | 1 | µg/L | | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 174.5 | ND | 0.08 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | 1,2-DICHLOROBENZENE | WG | 174.5 | ND | 0.08 | 1 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 174.5 | ND | 0.09 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | 1,2-DICHLOROETHANE | WG | 174.5 | ND | 0.09 | 1 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 174.5 | ND | 0.15 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | 1,2-DICHLOROPROPANE | WG | 174.5 | ND | 0.15 | 1 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 174.5 | ND | 0.09 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | 1,3-DICHLOROBENZENE | WG | 174.5 | ND | 0.09 | 1 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 174.5 | ND | 0.1 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | 1,4-DICHLOROBENZENE | WG | 174.5 | ND | 0.1 | 1 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | 2-HEXANONE | WG | 174.5 | ND | 0.83 | 5 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | 2-HEXANONE | WG | 174.5 | ND | 0.83 | 5 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | ACETONE | WG | 174.5 | - | - | - | µg/L | R | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | ACETONE | WG | 174.5 | - | - | - | µg/L | R | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | BENZENE | WG | 174.5 | 4.2 | 0.11 | 1 | µg/L | | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | BENZENE | WG | 174.5 | 4.1 | 0.11 | 1 | µg/L | | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 174.5 | ND | 0.1 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | BROMOCHLOROMETHANE | WG | 174.5 | ND | 0.1 | 1 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 174.5 | ND | 0.07 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | BROMODICHLOROMETHANE | WG | 174.5 | ND | 0.07 | 1 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | BROMOFORM | WG | 174.5 | ND | 0.19 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | BROMOFORM | WG | 174.5 | ND | 0.19 | 1 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | BROMOMETHANE | WG | 174.5 | ND | 0.15 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | BROMOMETHANE | WG | 174.5 | ND | 0.15 | 1 | µg/L | U | MS-A050904 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 174.5 | ND | 0.08 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | CARBON DISULFIDE | WG | 174.5 | ND | 0.08 | 1 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 174.5 | ND | 0.08 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | CARBON TETRACHLORIDE | WG | 174.5 | ND | 0.08 | 1 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | CHLOROBENZENE | WG | 174.5 | ND | 0.1 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | CHLOROBENZENE | WG | 174.5 | ND | 0.1 | 1 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | CHLOROETHANE | WG | 174.5 | ND | 0.08 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | CHLOROETHANE | WG | 174.5 | ND | 0.08 | 1 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | CHLOROFORM | WG | 174.5 | 1.2 | 0.08 | 1 | µg/L |  | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | CHLOROFORM | WG | 174.5 | 1.2 | 0.08 | 1 | µg/L |  | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | CHLOROMETHANE | WG | 174.5 | ND | 0.1 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | CHLOROMETHANE | WG | 174.5 | ND | 0.1 | 1 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 174.5 | ND | 0.08 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | CIS-1,2-DICHLOROETHENE | WG | 174.5 | ND | 0.08 | 1 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 174.5 | ND | 0.07 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | CIS-1,3-DICHLOROPROPENE | WG | 174.5 | ND | 0.07 | 1 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 174.5 | ND | 0.09 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | DIBROMOCHLOROMETHANE | WG | 174.5 | ND | 0.09 | 1 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | ETHYLBENZENE | WG | 174.5 | ND | 0.1 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | ETHYLBENZENE | WG | 174.5 | ND | 0.1 | 1 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 174.5 | - | - | - | µg/L | R | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 174.5 | - | - | - | µg/L | R | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 174.5 | ND | 0.72 | 5 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 174.5 | ND | 0.72 | 5 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 174.5 | ND | 0.09 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 174.5 | ND | 0.09 | 1 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 174.5 | ND | 0.65 | 7.3 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | METHYLENE CHLORIDE | WG | 174.5 | ND | 0.72 | 7.3 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | STYRENE | WG | 174.5 | ND | 0.12 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | STYRENE | WG | 174.5 | ND | 0.12 | 1 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 174.5 | ND | 0.11 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | TETRACHLOROETHENE(PCE) | WG | 174.5 | ND | 0.11 | 1 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | TOLUENE | WG | 174.5 | ND | 0.09 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | TOLUENE | WG | 174.5 | ND | 0.09 | 1 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 174.5 | ND | 0.09 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | TRANS-1,2-DICHLOROETHENE | WG | 174.5 | ND | 0.09 | 1 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 174.5 | ND | 0.08 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | TRANS-1,3-DICHLOROPROPENE | WG | 174.5 | ND | 0.08 | 1 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 174.5 | ND | 0.09 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | TRICHLOROETHENE(TCE) | WG | 174.5 | ND | 0.09 | 1 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 174.5 | ND | 0.08 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | VINYL CHLORIDE | WG | 174.5 | ND | 0.08 | 1 | µg/L | U | MS-A050904 |
| 90EW0019 | 90EW0019- | 12/19/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 174.5 | ND | 0.11 | 1 | µg/L | U | MS-A050902 |
| 90EW0019 | 90EW0019-FD | 12/19/2000 | CVOL | FD1 | XYLENES, TOTAL | WG | 174.5 | ND | 0.11 | 1 | µg/L | U | MS-A050904 |
| 90EW0020 | 90EW0020- | 12/19/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 156 | ND | 0.0056 | 0.01 | µg/L | U | MS-A050905 |
| 90EW0020 | 90EW0020- | 12/19/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 156 | ND | 0.0048 | 0.01 | µg/L | U | MS-A050905 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 156 | ND | 0.09 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 156 | ND | 0.13 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 156 | ND | 0.11 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 156 | ND | 0.07 | 1 | µg/L | U | MS-A050906 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 156 | ND | 0.09 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 156 | ND | 0.14 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 156 | - | - | - | µg/L | R | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 156 | ND | 0.1 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 156 | ND | 0.08 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 156 | ND | 0.09 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 156 | ND | 0.15 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 156 | ND | 0.09 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 156 | ND | 0.1 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | 2-HEXANONE | WG | 156 | ND | 0.83 | 5 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | ACETONE | WG | 156 | - | - | - | µg/L | R | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | BENZENE | WG | 156 | ND | 0.11 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 156 | ND | 0.1 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 156 | ND | 0.07 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | BROMOFORM | WG | 156 | ND | 0.19 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | BROMOMETHANE | WG | 156 | ND | 0.15 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 156 | ND | 0.08 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 156 | ND | 0.08 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | CHLOROBENZENE | WG | 156 | ND | 0.1 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | CHLOROETHANE | WG | 156 | ND | 0.08 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | CHLOROFORM | WG | 156 | ND | 0.08 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | CHLOROMETHANE | WG | 156 | ND | 0.1 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 156 | ND | 0.08 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 156 | ND | 0.07 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 156 | ND | 0.09 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | ETHYLBENZENE | WG | 156 | ND | 0.1 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 156 | - | - | - | µg/L | R | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 156 | ND | 0.72 | 5 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 156 | ND | 0.09 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 156 | ND | 0.8 | 7.3 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | STYRENE | WG | 156 | ND | 0.12 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 156 | ND | 0.11 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | TOLUENE | WG | 156 | ND | 0.09 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 156 | ND | 0.09 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 156 | ND | 0.08 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 156 | ND | 0.09 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 156 | ND | 0.08 | 1 | µg/L | U | MS-A050906 |
| 90EW0020 | 90EW0020- | 12/19/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 156 | ND | 0.11 | 1 | µg/L | U | MS-A050906 |
| 90EW0021 | 90EW0021- | 12/19/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 160.06 | ND | 0.0056 | 0.01 | µg/L | U | MS-A050907 |
| 90EW0021 | 90EW0021- | 12/19/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 160.06 | ND | 0.0048 | 0.01 | µg/L | U | MS-A050907 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 160.06 | ND | 0.09 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 160.06 | ND | 0.13 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 160.06 | ND | 0.11 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 160.06 | ND | 0.07 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 160.06 | ND | 0.09 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 160.06 | ND | 0.14 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 160.06 | - | - | - | µg/L | R | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 160.06 | ND | 0.1 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 160.06 | ND | 0.08 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 160.06 | ND | 0.09 | 1 | µg/L | U | MS-A050908 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 160.06 | ND | 0.15 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 160.06 | ND | 0.09 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 160.06 | ND | 0.1 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | 2-HEXANONE | WG | 160.06 | ND | 0.83 | 5 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | ACETONE | WG | 160.06 | - | - | - | µg/L | R | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | BENZENE | WG | 160.06 | ND | 0.11 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 160.06 | ND | 0.1 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 160.06 | ND | 0.07 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | BROMOFORM | WG | 160.06 | ND | 0.19 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | BROMOMETHANE | WG | 160.06 | ND | 0.15 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 160.06 | ND | 0.08 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 160.06 | ND | 0.08 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | CHLOROBENZENE | WG | 160.06 | ND | 0.1 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | CHLOROETHANE | WG | 160.06 | ND | 0.08 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | CHLOROFORM | WG | 160.06 | ND | 0.08 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | CHLOROMETHANE | WG | 160.06 | ND | 0.1 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 160.06 | ND | 0.08 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 160.06 | ND | 0.07 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 160.06 | ND | 0.09 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | ETHYLBENZENE | WG | 160.06 | ND | 0.1 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 160.06 | - | - | - | µg/L | R | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 160.06 | ND | 0.72 | 5 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 160.06 | ND | 0.09 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 160.06 | ND | 0.81 | 7.3 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | STYRENE | WG | 160.06 | ND | 0.12 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 160.06 | ND | 0.11 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | TOLUENE | WG | 160.06 | ND | 0.09 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 160.06 | ND | 0.09 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 160.06 | ND | 0.08 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 160.06 | ND | 0.09 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 160.06 | ND | 0.08 | 1 | µg/L | U | MS-A050908 |
| 90EW0021 | 90EW0021- | 12/19/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 160.06 | ND | 0.11 | 1 | µg/L | U | MS-A050908 |
| 90EW0022 | 90EW0022- | 12/19/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 157 | ND | 0.0056 | 0.01 | µg/L | U | MS-A051001 |
| 90EW0022 | 90EW0022- | 12/19/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 157 | ND | 0.0048 | 0.01 | µg/L | U | MS-A051001 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 157 | ND | 0.09 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 157 | ND | 0.13 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 157 | ND | 0.11 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 157 | ND | 0.07 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 157 | ND | 0.09 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 157 | ND | 0.14 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 157 | - | - | - | µg/L | R | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 157 | ND | 0.1 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 157 | ND | 0.08 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 157 | ND | 0.09 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 157 | ND | 0.15 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 157 | ND | 0.09 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 157 | ND | 0.1 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | 2-HEXANONE | WG | 157 | ND | 0.83 | 5 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | ACETONE | WG | 157 | - | - | - | µg/L | R | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | BENZENE | WG | 157 | ND | 0.11 | 1 | µg/L | U | MS-A051002 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 157 | ND | 0.1 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 157 | ND | 0.07 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | BROMOFORM | WG | 157 | ND | 0.19 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | BROMOMETHANE | WG | 157 | ND | 0.15 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 157 | ND | 0.08 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 157 | ND | 0.08 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | CHLOROBENZENE | WG | 157 | ND | 0.1 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | CHLOROETHANE | WG | 157 | ND | 0.08 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | CHLOROFORM | WG | 157 | ND | 0.08 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | CHLOROMETHANE | WG | 157 | ND | 0.1 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 157 | ND | 0.08 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 157 | ND | 0.07 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 157 | ND | 0.09 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | ETHYLBENZENE | WG | 157 | ND | 0.1 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 157 | - | - | - | µg/L | R | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 157 | ND | 0.72 | 5 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 157 | ND | 0.09 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 157 | ND | 0.79 | 7.3 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | STYRENE | WG | 157 | ND | 0.12 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 157 | ND | 0.11 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | TOLUENE | WG | 157 | ND | 0.09 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 157 | ND | 0.09 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 157 | ND | 0.08 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 157 | ND | 0.09 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 157 | ND | 0.08 | 1 | µg/L | U | MS-A051002 |
| 90EW0022 | 90EW0022- | 12/19/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 157 | ND | 0.11 | 1 | µg/L | U | MS-A051002 |
| 90EW0023 | 90EW0023- | 12/19/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 152 | ND | 0.0056 | 0.01 | µg/L | U | MS-A051003 |
| 90EW0023 | 90EW0023- | 12/19/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 152 | 0.0095 | 0.0048 | 0.01 | µg/L | J | MS-A051003 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 152 | ND | 0.09 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 152 | ND | 0.13 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 152 | ND | 0.11 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 152 | ND | 0.07 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 152 | ND | 0.09 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 152 | ND | 0.14 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 152 | - | - | - | µg/L | R | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 152 | ND | 0.1 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 152 | ND | 0.08 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 152 | ND | 0.09 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 152 | ND | 0.15 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 152 | ND | 0.09 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 152 | ND | 0.1 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | 2-HEXANONE | WG | 152 | ND | 0.83 | 5 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | ACETONE | WG | 152 | - | - | - | µg/L | R | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | BENZENE | WG | 152 | ND | 0.11 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 152 | ND | 0.1 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 152 | ND | 0.07 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | BROMOFORM | WG | 152 | ND | 0.19 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | BROMOMETHANE | WG | 152 | ND | 0.15 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 152 | ND | 0.08 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 152 | ND | 0.08 | 1 | µg/L | U | MS-A051004 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | CHLOROBENZENE | WG | 152 | ND | 0.1 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | CHLOROETHANE | WG | 152 | ND | 0.08 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | CHLOROFORM | WG | 152 | ND | 0.08 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | CHLOROMETHANE | WG | 152 | ND | 0.1 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 152 | ND | 0.08 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 152 | ND | 0.07 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 152 | ND | 0.09 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | ETHYLBENZENE | WG | 152 | ND | 0.1 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 152 | - | - | - | µg/L | R | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 152 | ND | 0.72 | 5 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 152 | ND | 0.09 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 152 | ND | 0.81 | 7.3 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | STYRENE | WG | 152 | ND | 0.12 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 152 | ND | 0.11 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | TOLUENE | WG | 152 | ND | 0.09 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 152 | ND | 0.09 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 152 | ND | 0.08 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 152 | ND | 0.09 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 152 | ND | 0.08 | 1 | µg/L | U | MS-A051004 |
| 90EW0023 | 90EW0023- | 12/19/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 152 | ND | 0.11 | 1 | µg/L | U | MS-A051004 |
| 90EW0024 | 90EW0024- | 12/19/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 159.8 | ND | 0.0056 | 0.01 | µg/L | U | MS-A051005 |
| 90EW0024 | 90EW0024- | 12/19/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 159.8 | 0.13 | 0.0048 | 0.01 | µg/L | | MS-A051005 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 159.8 | ND | 0.09 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 159.8 | ND | 0.13 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 159.8 | ND | 0.11 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 159.8 | ND | 0.07 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 159.8 | ND | 0.09 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 159.8 | ND | 0.14 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 159.8 | - | - | - | µg/L | R | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 159.8 | ND | 0.1 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 159.8 | ND | 0.08 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 159.8 | ND | 0.09 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 159.8 | ND | 0.15 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 159.8 | ND | 0.09 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 159.8 | ND | 0.1 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | 2-HEXANONE | WG | 159.8 | ND | 0.83 | 5 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | ACETONE | WG | 159.8 | - | - | - | µg/L | R | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | BENZENE | WG | 159.8 | ND | 0.11 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 159.8 | ND | 0.1 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 159.8 | ND | 0.07 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | BROMOFORM | WG | 159.8 | ND | 0.19 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | BROMOMETHANE | WG | 159.8 | ND | 0.15 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 159.8 | ND | 0.08 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 159.8 | ND | 0.08 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | CHLOROBENZENE | WG | 159.8 | ND | 0.1 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | CHLOROETHANE | WG | 159.8 | ND | 0.08 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | CHLOROFORM | WG | 159.8 | ND | 0.08 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | CHLOROMETHANE | WG | 159.8 | ND | 0.1 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 159.8 | ND | 0.08 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 159.8 | ND | 0.07 | 1 | µg/L | U | MS-A051006 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 159.8 | ND | 0.09 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | ETHYLBENZENE | WG | 159.8 | ND | 0.1 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 159.8 | - | - | - | µg/L | R | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 159.8 | ND | 0.72 | 5 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 159.8 | ND | 0.09 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 159.8 | ND | 0.89 | 7.3 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | STYRENE | WG | 159.8 | ND | 0.12 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 159.8 | ND | 0.11 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | TOLUENE | WG | 159.8 | ND | 0.09 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 159.8 | ND | 0.09 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 159.8 | ND | 0.08 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 159.8 | ND | 0.09 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 159.8 | ND | 0.08 | 1 | µg/L | U | MS-A051006 |
| 90EW0024 | 90EW0024- | 12/19/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 159.8 | ND | 0.11 | 1 | µg/L | U | MS-A051006 |
| 90EW0025 | 90EW0025- | 12/20/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 173.3 | ND | 0.011 | 0.02 | µg/L | U | MS-A051201 |
| 90EW0025 | 90EW0025- | 12/20/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 173.3 | 0.69 | 0.0096 | 0.02 | µg/L | | MS-A051201 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 173.3 | ND | 0.09 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 173.3 | ND | 0.13 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 173.3 | ND | 0.11 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 173.3 | ND | 0.07 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 173.3 | ND | 0.09 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 173.3 | ND | 0.14 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 173.3 | - | - | - | µg/L | R | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 173.3 | 0.61 | 0.1 | 1 | µg/L | J | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 173.3 | ND | 0.08 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 173.3 | ND | 0.09 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 173.3 | ND | 0.15 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 173.3 | ND | 0.09 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 173.3 | ND | 0.1 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | 2-HEXANONE | WG | 173.3 | ND | 0.83 | 5 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | ACETONE | WG | 173.3 | - | - | - | µg/L | R | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | BENZENE | WG | 173.3 | ND | 0.11 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 173.3 | ND | 0.1 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 173.3 | ND | 0.07 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | BROMOFORM | WG | 173.3 | ND | 0.19 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | BROMOMETHANE | WG | 173.3 | ND | 0.15 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 173.3 | ND | 0.08 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 173.3 | ND | 0.08 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | CHLOROBENZENE | WG | 173.3 | ND | 0.1 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | CHLOROETHANE | WG | 173.3 | ND | 0.08 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | CHLOROFORM | WG | 173.3 | ND | 0.08 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | CHLOROMETHANE | WG | 173.3 | ND | 0.1 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 173.3 | ND | 0.08 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 173.3 | ND | 0.07 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 173.3 | ND | 0.09 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | ETHYLBENZENE | WG | 173.3 | ND | 0.1 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 173.3 | - | - | - | µg/L | R | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 173.3 | ND | 0.72 | 5 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 173.3 | ND | 0.09 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 173.3 | ND | 0.62 | 7.1 | µg/L | U | MS-A051202 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | STYRENE | WG | 173.3 | ND | 0.12 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 173.3 | ND | 0.11 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | TOLUENE | WG | 173.3 | ND | 0.09 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 173.3 | ND | 0.09 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 173.3 | ND | 0.08 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 173.3 | ND | 0.09 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 173.3 | ND | 0.08 | 1 | µg/L | U | MS-A051202 |
| 90EW0025 | 90EW0025- | 12/20/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 173.3 | ND | 0.11 | 1 | µg/L | U | MS-A051202 |
| 90EW0026 | 90EW0026- | 12/20/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 175.5 | ND | 0.022 | 0.04 | µg/L | U | MS-A051203 |
| 90EW0026 | 90EW0026- | 12/20/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 175.5 | 0.79 | 0.019 | 0.04 | µg/L | J | MS-A051203 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 175.5 | ND | 0.09 | 1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 175.5 | ND | 0.13 | 1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 175.5 | ND | 0.11 | 1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 175.5 | ND | 0.07 | 1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 175.5 | ND | 0.09 | 1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 175.5 | ND | 0.14 | 1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 175.5 | - | - | - | µg/L | R | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 175.5 | 0.94 | 0.1 | 1 | µg/L | J | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 175.5 | ND | 0.08 | 1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 175.5 | ND | 0.09 | 1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 175.5 | ND | 0.15 | 1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 175.5 | ND | 0.09 | 1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 175.5 | ND | 0.1 | 1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | 2-HEXANONE | WG | 175.5 | ND | 0.83 | 5 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | ACETONE | WG | 175.5 | - | - | - | µg/L | R | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | BENZENE | WG | 175.5 | ND | 0.11 | 1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 175.5 | ND | 0.1 | 1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 175.5 | ND | 0.07 | 1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | BROMOFORM | WG | 175.5 | ND | 0.19 | 1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | BROMOMETHANE | WG | 175.5 | ND | 0.15 | 1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 175.5 | ND | 0.08 | 1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 175.5 | ND | 0.08 | 1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | CHLOROBENZENE | WG | 175.5 | ND | 0.1 | 1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | CHLOROETHANE | WG | 175.5 | ND | 0.08 | 1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | CHLOROFORM | WG | 175.5 | 0.57 | 0.08 | 1 | µg/L | J | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | CHLOROMETHANE | WG | 175.5 | ND | 0.1 | 1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 175.5 | ND | 0.08 | 1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 175.5 | ND | 0.07 | 1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 175.5 | ND | 0.09 | 1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | ETHYLBENZENE | WG | 175.5 | ND | 0.1 | 1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 175.5 | - | - | - | µg/L | R | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 175.5 | ND | 0.72 | 5 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 175.5 | ND | 0.09 | 1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 175.5 | ND | 0.58 | 7.1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | STYRENE | WG | 175.5 | ND | 0.12 | 1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 175.5 | ND | 0.11 | 1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | TOLUENE | WG | 175.5 | ND | 0.09 | 1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 175.5 | ND | 0.09 | 1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 175.5 | ND | 0.08 | 1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 175.5 | ND | 0.09 | 1 | µg/L | U | MS-A051204 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 175.5 | ND | 0.08 | 1 | µg/L | U | MS-A051204 |
| 90EW0026 | 90EW0026- | 12/20/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 175.5 | ND | 0.11 | 1 | µg/L | U | MS-A051204 |
| 90EW0027 | 90EW0027- | 12/20/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 175.6 | ND | 0.056 | 0.1 | µg/L | U | MS-A051205 |
| 90EW0027 | 90EW0027- | 12/20/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 175.6 | 2.2 | 0.048 | 0.1 | µg/L | J | MS-A051205 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 175.6 | ND | 0.09 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 175.6 | ND | 0.13 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 175.6 | ND | 0.11 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 175.6 | ND | 0.07 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 175.6 | ND | 0.09 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 175.6 | ND | 0.14 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 175.6 | - | - | - | µg/L | R | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 175.6 | 2.5 | 0.1 | 1 | µg/L | | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 175.6 | ND | 0.08 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 175.6 | ND | 0.09 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 175.6 | ND | 0.15 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 175.6 | ND | 0.09 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 175.6 | ND | 0.1 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | 2-HEXANONE | WG | 175.6 | ND | 0.83 | 5 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | ACETONE | WG | 175.6 | - | - | - | µg/L | R | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | BENZENE | WG | 175.6 | ND | 0.11 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 175.6 | ND | 0.1 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 175.6 | ND | 0.07 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | BROMOFORM | WG | 175.6 | ND | 0.19 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | BROMOMETHANE | WG | 175.6 | ND | 0.15 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 175.6 | ND | 0.08 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 175.6 | ND | 0.08 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | CHLOROBENZENE | WG | 175.6 | ND | 0.1 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | CHLOROETHANE | WG | 175.6 | ND | 0.08 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | CHLOROFORM | WG | 175.6 | 0.58 | 0.08 | 1 | µg/L | J | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | CHLOROMETHANE | WG | 175.6 | ND | 0.1 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 175.6 | ND | 0.08 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 175.6 | ND | 0.07 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 175.6 | ND | 0.09 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | ETHYLBENZENE | WG | 175.6 | ND | 0.1 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 175.6 | - | - | - | µg/L | R | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 175.6 | ND | 0.72 | 5 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 175.6 | ND | 0.09 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 175.6 | ND | 0.79 | 7.1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | STYRENE | WG | 175.6 | ND | 0.12 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 175.6 | ND | 0.11 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | TOLUENE | WG | 175.6 | ND | 0.09 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 175.6 | ND | 0.09 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 175.6 | ND | 0.08 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 175.6 | ND | 0.09 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 175.6 | ND | 0.08 | 1 | µg/L | U | MS-A051206 |
| 90EW0027 | 90EW0027- | 12/20/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 175.6 | ND | 0.11 | 1 | µg/L | U | MS-A051206 |
| 90EW0028 | 90EW0028- | 12/20/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 167 | ND | 0.056 | 0.1 | µg/L | U | MS-A051207 |
| 90EW0028 | 90EW0028- | 12/20/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 167 | 3.3 | 0.048 | 0.1 | µg/L | | MS-A051207 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 167 | ND | 0.09 | 1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 167 | ND | 0.13 | 1 | µg/L | U | MS-A051208 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 167 | ND | 0.11 | 1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 167 | ND | 0.07 | 1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 167 | ND | 0.09 | 1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 167 | ND | 0.14 | 1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 167 | - | - | - | µg/L | R | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 167 | 3 | 0.1 | 1 | µg/L | | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 167 | ND | 0.08 | 1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 167 | ND | 0.09 | 1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 167 | ND | 0.15 | 1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 167 | ND | 0.09 | 1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 167 | ND | 0.1 | 1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | 2-HEXANONE | WG | 167 | ND | 0.83 | 5 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | ACETONE | WG | 167 | - | - | - | µg/L | R | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | BENZENE | WG | 167 | ND | 0.11 | 1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 167 | ND | 0.1 | 1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 167 | ND | 0.07 | 1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | BROMOFORM | WG | 167 | ND | 0.19 | 1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | BROMOMETHANE | WG | 167 | ND | 0.15 | 1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 167 | ND | 0.08 | 1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 167 | ND | 0.08 | 1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | CHLOROBENZENE | WG | 167 | ND | 0.1 | 1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | CHLOROETHANE | WG | 167 | ND | 0.08 | 1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | CHLOROFORM | WG | 167 | 0.53 | 0.08 | 1 | µg/L | J | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | CHLOROMETHANE | WG | 167 | ND | 0.1 | 1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 167 | ND | 0.08 | 1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 167 | ND | 0.07 | 1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 167 | ND | 0.09 | 1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | ETHYLBENZENE | WG | 167 | ND | 0.1 | 1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 167 | - | - | - | µg/L | R | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 167 | ND | 0.72 | 5 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 167 | ND | 0.09 | 1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 167 | ND | 0.73 | 7.1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | STYRENE | WG | 167 | ND | 0.12 | 1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 167 | ND | 0.11 | 1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | TOLUENE | WG | 167 | ND | 0.09 | 1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 167 | ND | 0.09 | 1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 167 | ND | 0.08 | 1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 167 | ND | 0.09 | 1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 167 | ND | 0.08 | 1 | µg/L | U | MS-A051208 |
| 90EW0028 | 90EW0028- | 12/20/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 167 | ND | 0.11 | 1 | µg/L | U | MS-A051208 |
| 90EW0029 | 90EW0029- | 12/20/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 165 | ND | 0.022 | 0.04 | µg/L | U | MS-A051301 |
| 90EW0029 | 90EW0029- | 12/20/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 165 | 0.9 | 0.019 | 0.04 | µg/L | | MS-A051301 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 165 | ND | 0.09 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 165 | ND | 0.13 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 165 | ND | 0.11 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 165 | ND | 0.07 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 165 | ND | 0.09 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 165 | ND | 0.14 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 165 | - | - | - | µg/L | R | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 165 | 0.92 | 0.1 | 1 | µg/L | J | MS-A051302 |

## Appendix D
## Analytical Laboratory Results
## October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 165 | ND | 0.08 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 165 | ND | 0.09 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 165 | ND | 0.15 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 165 | ND | 0.09 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 165 | ND | 0.1 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | 2-HEXANONE | WG | 165 | ND | 0.83 | 5 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | ACETONE | WG | 165 | - | - | - | µg/L | R | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | BENZENE | WG | 165 | ND | 0.11 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 165 | ND | 0.1 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 165 | ND | 0.07 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | BROMOFORM | WG | 165 | ND | 0.19 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | BROMOMETHANE | WG | 165 | ND | 0.15 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 165 | ND | 0.08 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 165 | ND | 0.08 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | CHLOROBENZENE | WG | 165 | ND | 0.1 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | CHLOROETHANE | WG | 165 | ND | 0.08 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | CHLOROFORM | WG | 165 | 1.1 | 0.08 | 1 | µg/L |  | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | CHLOROMETHANE | WG | 165 | ND | 0.1 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 165 | ND | 0.08 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 165 | ND | 0.07 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 165 | ND | 0.09 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | ETHYLBENZENE | WG | 165 | ND | 0.1 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 165 | - | - | - | µg/L | R | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 165 | ND | 0.72 | 5 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 165 | ND | 0.09 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 165 | ND | 0.75 | 7.1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | STYRENE | WG | 165 | ND | 0.12 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 165 | ND | 0.11 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | TOLUENE | WG | 165 | ND | 0.09 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 165 | ND | 0.09 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 165 | ND | 0.08 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 165 | ND | 0.09 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 165 | ND | 0.08 | 1 | µg/L | U | MS-A051302 |
| 90EW0029 | 90EW0029- | 12/20/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 165 | ND | 0.11 | 1 | µg/L | U | MS-A051302 |
| 90EW0030 | 90EW0030- | 12/20/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 168 | ND | 0.0056 | 0.01 | µg/L | U | MS-A051303 |
| 90EW0030 | 90EW0030- | 12/20/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 168 | ND | 0.0048 | 0.01 | µg/L | U | MS-A051303 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 168 | ND | 0.09 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 168 | ND | 0.13 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 168 | ND | 0.11 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 168 | ND | 0.07 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 168 | ND | 0.09 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 168 | ND | 0.14 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 168 | - | - | - | µg/L | R | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 168 | ND | 0.1 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 168 | ND | 0.08 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 168 | ND | 0.09 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 168 | ND | 0.15 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 168 | ND | 0.09 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 168 | ND | 0.1 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | 2-HEXANONE | WG | 168 | ND | 0.83 | 5 | µg/L | U | MS-A051304 |

**Appendix D**
**Analytical Laboratory Results**
**October 2000 - January 2001**

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | ACETONE | WG | 168 | - | - | - | µg/L | R | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | BENZENE | WG | 168 | ND | 0.11 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 168 | ND | 0.1 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 168 | ND | 0.07 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | BROMOFORM | WG | 168 | ND | 0.19 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | BROMOMETHANE | WG | 168 | ND | 0.15 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 168 | ND | 0.08 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 168 | ND | 0.08 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | CHLOROBENZENE | WG | 168 | ND | 0.1 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | CHLOROETHANE | WG | 168 | ND | 0.08 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | CHLOROFORM | WG | 168 | 1.2 | 0.08 | 1 | µg/L |  | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | CHLOROMETHANE | WG | 168 | ND | 0.1 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 168 | ND | 0.08 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 168 | ND | 0.07 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 168 | ND | 0.09 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | ETHYLBENZENE | WG | 168 | ND | 0.1 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 168 | - | - | - | µg/L | R | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 168 | ND | 0.72 | 5 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 168 | ND | 0.09 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 168 | ND | 0.66 | 7.1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | STYRENE | WG | 168 | ND | 0.12 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 168 | ND | 0.11 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | TOLUENE | WG | 168 | ND | 0.09 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 168 | ND | 0.09 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 168 | ND | 0.08 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 168 | ND | 0.09 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 168 | ND | 0.08 | 1 | µg/L | U | MS-A051304 |
| 90EW0030 | 90EW0030- | 12/20/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 168 | ND | 0.11 | 1 | µg/L | U | MS-A051304 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 91.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A044701 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 91.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A044701 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | C200.7 | N1 | ALUMINUM (TOTAL) | WG | 91.5 | ND | 76.9 | 395 | µg/L | U | MS-A044801 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | C200.7 | N1 | BARIUM (TOTAL) | WG | 91.5 | 5.1 | 0.2 | 200 | µg/L | J | MS-A044801 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | C200.7 | N1 | BERYLLIUM (TOTAL) | WG | 91.5 | ND | 0.6 | 4 | µg/L | UJ | MS-A044801 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | C200.7 | N1 | CADMIUM (TOTAL) | WG | 91.5 | ND | 0.5 | 5 | µg/L | UJ | MS-A044801 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | C200.7 | N1 | CALCIUM (TOTAL) | WG | 91.5 | 3390 | 47.4 | 5000 | µg/L | J | MS-A044801 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | C200.7 | N1 | CHROMIUM (TOTAL) | WG | 91.5 | ND | 7 | 40 | µg/L | UJ | MS-A044801 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | C200.7 | N1 | COBALT (TOTAL) | WG | 91.5 | ND | 1.1 | 50 | µg/L | UJ | MS-A044801 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | C200.7 | N1 | COPPER (TOTAL) | WG | 91.5 | ND | 3.3 | 25 | µg/L | U | MS-A044801 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | C200.7 | N1 | IRON (TOTAL) | WG | 91.5 | ND | 86.4 | 219 | µg/L | U | MS-A044801 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | C200.7 | N1 | MAGNESIUM (TOTAL) | WG | 91.5 | 851 | 41.6 | 5000 | µg/L | J | MS-A044801 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | C200.7 | N1 | MANGANESE (TOTAL) | WG | 91.5 | ND | 1 | 15 | µg/L | UJ | MS-A044801 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | C200.7 | N1 | NICKEL (TOTAL) | WG | 91.5 | ND | 1.1 | 40 | µg/L | UJ | MS-A044801 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | C200.7 | N1 | POTASSIUM (TOTAL) | WG | 91.5 | 1360 | 1180 | 5000 | µg/L | J | MS-A044801 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | C200.7 | N1 | SILVER (TOTAL) | WG | 91.5 | ND | 0.6 | 10 | µg/L | UJ | MS-A044801 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | C200.7 | N1 | SODIUM (TOTAL) | WG | 91.5 | 7190 | 82.8 | 5000 | µg/L |  | MS-A044801 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | C200.7 | N1 | VANADIUM (TOTAL) | WG | 91.5 | ND | 1.1 | 50 | µg/L | UJ | MS-A044801 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | C200.7 | N1 | ZINC (TOTAL) | WG | 91.5 | ND | 11 | 30 | µg/L | U | MS-A044801 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | C204.2 | N1 | ANTIMONY (TOTAL) | WG | 91.5 | ND | 2.6 | 6 | µg/L | UJ | MS-A044801 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | C206.2 | N1 | ARSENIC (TOTAL) | WG | 91.5 | ND | 1.6 | 10 | µg/L | U | MS-A044801 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | C239.2 | N1 | LEAD (TOTAL) | WG | 91.5 | ND | 1.3 | 3 | µg/L | UJ | MS-A044801 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90JB0001B | 90JB0001B- | 12/8/2000 | C245.1 | N1 | MERCURY (TOTAL) | WG | 91.5 | ND | 0.1 | 0.2 | µg/L | U | MS-A044801 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | C270.2 | N1 | SELENIUM (TOTAL) | WG | 91.5 | ND | 1.5 | 5 | µg/L | U | MS-A044801 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | C279.2 | N1 | THALLIUM (TOTAL) | WG | 91.5 | ND | 1.4 | 2 | µg/L | UJ | MS-A044801 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 91.5 | ND | 0.09 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 91.5 | ND | 0.13 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 91.5 | ND | 0.11 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 91.5 | ND | 0.07 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 91.5 | ND | 0.09 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 91.5 | ND | 0.14 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 91.5 | - | - | - | µg/L | R | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 91.5 | ND | 0.1 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 91.5 | ND | 0.08 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 91.5 | ND | 0.09 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 91.5 | ND | 0.15 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 91.5 | ND | 0.09 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 91.5 | ND | 0.1 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | 2-HEXANONE | WG | 91.5 | ND | 0.83 | 5 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | ACETONE | WG | 91.5 | - | - | - | µg/L | R | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | BENZENE | WG | 91.5 | ND | 0.11 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 91.5 | ND | 0.1 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 91.5 | ND | 0.07 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | BROMOFORM | WG | 91.5 | ND | 0.19 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | BROMOMETHANE | WG | 91.5 | ND | 0.15 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 91.5 | ND | 0.08 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 91.5 | ND | 0.08 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | CHLOROBENZENE | WG | 91.5 | ND | 0.1 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | CHLOROETHANE | WG | 91.5 | ND | 0.08 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | CHLOROFORM | WG | 91.5 | ND | 0.08 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | CHLOROMETHANE | WG | 91.5 | ND | 0.1 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 91.5 | ND | 0.08 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 91.5 | ND | 0.07 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 91.5 | ND | 0.09 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | ETHYLBENZENE | WG | 91.5 | ND | 0.1 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 91.5 | - | - | - | µg/L | R | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 91.5 | ND | 0.72 | 5 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 91.5 | ND | 0.09 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 91.5 | 0.7 | 0.08 | 2 | µg/L | J | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | STYRENE | WG | 91.5 | ND | 0.12 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 91.5 | ND | 0.11 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | TOLUENE | WG | 91.5 | ND | 0.09 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 91.5 | ND | 0.09 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 91.5 | ND | 0.08 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 91.5 | ND | 0.09 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 91.5 | ND | 0.08 | 1 | µg/L | U | MS-A044702 |
| 90JB0001B | 90JB0001B- | 12/8/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 91.5 | ND | 0.11 | 1 | µg/L | U | MS-A044702 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 136.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A044703 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 136.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A044703 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | C200.7 | N1 | ALUMINUM (TOTAL) | WG | 136.5 | ND | 54.7 | 200 | µg/L | U | MS-A044802 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | C200.7 | N1 | BARIUM (TOTAL) | WG | 136.5 | ND | 3.2 | 200 | µg/L | U | MS-A044802 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | C200.7 | N1 | BERYLLIUM (TOTAL) | WG | 136.5 | ND | 0.6 | 4 | µg/L | UJ | MS-A044802 |

## Appendix D
## Analytical Laboratory Results
## October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90JB0001C | 90JB0001C- | 12/8/2000 | C200.7 | N1 | CADMIUM (TOTAL) | WG | 136.5 | ND | 0.5 | 5 | µg/L | UJ | MS-A044802 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | C200.7 | N1 | CALCIUM (TOTAL) | WG | 136.5 | 1580 | 47.4 | 5000 | µg/L | J | MS-A044802 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | C200.7 | N1 | CHROMIUM (TOTAL) | WG | 136.5 | ND | 0.7 | 40 | µg/L | UJ | MS-A044802 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | C200.7 | N1 | COBALT (TOTAL) | WG | 136.5 | ND | 1.1 | 50 | µg/L | UJ | MS-A044802 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | C200.7 | N1 | COPPER (TOTAL) | WG | 136.5 | ND | 3.5 | 25 | µg/L | U | MS-A044802 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | C200.7 | N1 | IRON (TOTAL) | WG | 136.5 | ND | 48.3 | 100 | µg/L | U | MS-A044802 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | C200.7 | N1 | MAGNESIUM (TOTAL) | WG | 136.5 | 1130 | 41.6 | 5000 | µg/L | J | MS-A044802 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | C200.7 | N1 | MANGANESE (TOTAL) | WG | 136.5 | ND | 1 | 15 | µg/L | UJ | MS-A044802 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | C200.7 | N1 | NICKEL (TOTAL) | WG | 136.5 | ND | 1.1 | 40 | µg/L | UJ | MS-A044802 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | C200.7 | N1 | POTASSIUM (TOTAL) | WG | 136.5 | ND | 1180 | 5000 | µg/L | U | MS-A044802 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | C200.7 | N1 | SILVER (TOTAL) | WG | 136.5 | ND | 0.6 | 10 | µg/L | UJ | MS-A044802 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | C200.7 | N1 | SODIUM (TOTAL) | WG | 136.5 | 8790 | 82.8 | 5000 | µg/L |  | MS-A044802 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | C200.7 | N1 | VANADIUM (TOTAL) | WG | 136.5 | ND | 1.1 | 50 | µg/L | UJ | MS-A044802 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | C200.7 | N1 | ZINC (TOTAL) | WG | 136.5 | ND | 5.3 | 30 | µg/L | U | MS-A044802 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | C204.2 | N1 | ANTIMONY (TOTAL) | WG | 136.5 | ND | 2.6 | 6 | µg/L | UJ | MS-A044802 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | C206.2 | N1 | ARSENIC (TOTAL) | WG | 136.5 | ND | 1.6 | 10 | µg/L | U | MS-A044802 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | C239.2 | N1 | LEAD (TOTAL) | WG | 136.5 | ND | 1.3 | 3 | µg/L | UJ | MS-A044802 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | C245.1 | N1 | MERCURY (TOTAL) | WG | 136.5 | ND | 0.1 | 0.2 | µg/L | U | MS-A044802 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | C270.2 | N1 | SELENIUM (TOTAL) | WG | 136.5 | ND | 1.5 | 5 | µg/L | U | MS-A044802 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | C279.2 | N1 | THALLIUM (TOTAL) | WG | 136.5 | ND | 1.4 | 2 | µg/L | UJ | MS-A044802 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 136.5 | ND | 0.09 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 136.5 | ND | 0.13 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 136.5 | ND | 0.11 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 136.5 | ND | 0.07 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 136.5 | ND | 0.09 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 136.5 | ND | 0.14 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 136.5 | - | - | - | µg/L | R | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 136.5 | ND | 0.1 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 136.5 | ND | 0.08 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 136.5 | ND | 0.09 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 136.5 | ND | 0.15 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 136.5 | ND | 0.09 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 136.5 | ND | 0.1 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | 2-HEXANONE | WG | 136.5 | ND | 0.83 | 5 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | ACETONE | WG | 136.5 | - | - | - | µg/L | R | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | BENZENE | WG | 136.5 | ND | 0.11 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 136.5 | ND | 0.1 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 136.5 | ND | 0.07 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | BROMOFORM | WG | 136.5 | ND | 0.19 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | BROMOMETHANE | WG | 136.5 | ND | 0.15 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 136.5 | ND | 0.08 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 136.5 | ND | 0.08 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | CHLOROBENZENE | WG | 136.5 | ND | 0.1 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | CHLOROETHANE | WG | 136.5 | ND | 0.08 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | CHLOROFORM | WG | 136.5 | ND | 0.08 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | CHLOROMETHANE | WG | 136.5 | ND | 0.1 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 136.5 | ND | 0.08 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 136.5 | ND | 0.07 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 136.5 | ND | 0.09 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | ETHYLBENZENE | WG | 136.5 | ND | 0.1 | 1 | µg/L | U | MS-A044704 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 136.5 | - | - | - | µg/L | R | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 136.5 | ND | 0.72 | 5 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 136.5 | ND | 0.09 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 136.5 | ND | 0.08 | 2 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | STYRENE | WG | 136.5 | ND | 0.12 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 136.5 | ND | 0.11 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | TOLUENE | WG | 136.5 | ND | 0.09 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 136.5 | ND | 0.09 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 136.5 | ND | 0.08 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 136.5 | ND | 0.09 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 136.5 | ND | 0.08 | 1 | µg/L | U | MS-A044704 |
| 90JB0001C | 90JB0001C- | 12/8/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 136.5 | ND | 0.11 | 1 | µg/L | U | MS-A044704 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 161.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A047701 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 161.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A047701 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | C200.7 | N1 | ALUMINUM (TOTAL) | WG | 161.5 | ND | 172 | 323 | µg/L | U | MS-A047801 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | C200.7 | N1 | ANTIMONY (TOTAL) | WG | 161.5 | ND | 5.7 | 6 | µg/L | U | MS-A047801 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | C200.7 | N1 | ARSENIC (TOTAL) | WG | 161.5 | ND | 4.3 | 10 | µg/L | U | MS-A047801 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | C200.7 | N1 | BARIUM (TOTAL) | WG | 161.5 | 2.5 | 0.2 | 200 | µg/L | J | MS-A047801 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | C200.7 | N1 | BERYLLIUM (TOTAL) | WG | 161.5 | ND | 0.6 | 4 | µg/L | U | MS-A047801 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | C200.7 | N1 | CADMIUM (TOTAL) | WG | 161.5 | ND | 0.5 | 5 | µg/L | UJ | MS-A047801 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | C200.7 | N1 | CALCIUM (TOTAL) | WG | 161.5 | 2140 | 47.4 | 5000 | µg/L | J | MS-A047801 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | C200.7 | N1 | CHROMIUM (TOTAL) | WG | 161.5 | ND | 4.1 | 10 | µg/L | U | MS-A047801 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | C200.7 | N1 | COBALT (TOTAL) | WG | 161.5 | ND | 1.1 | 50 | µg/L | UJ | MS-A047801 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | C200.7 | N1 | COPPER (TOTAL) | WG | 161.5 | ND | 1.6 | 25 | µg/L | UJ | MS-A047801 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | C200.7 | N1 | IRON (TOTAL) | WG | 161.5 | 272 | 35.1 | 100 | µg/L | | MS-A047801 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | C200.7 | N1 | LEAD (TOTAL) | WG | 161.5 | ND | 2.4 | 3 | µg/L | U | MS-A047801 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | C200.7 | N1 | MAGNESIUM (TOTAL) | WG | 161.5 | 1080 | 59.4 | 5000 | µg/L | J | MS-A047801 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | C200.7 | N1 | MANGANESE (TOTAL) | WG | 161.5 | ND | 3.1 | 15 | µg/L | U | MS-A047801 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | C200.7 | N1 | NICKEL (TOTAL) | WG | 161.5 | 4.3 | 1.1 | 40 | µg/L | J | MS-A047801 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | C200.7 | N1 | POTASSIUM (TOTAL) | WG | 161.5 | ND | 662 | 5000 | µg/L | U | MS-A047801 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | C200.7 | N1 | SILVER (TOTAL) | WG | 161.5 | ND | 0.6 | 10 | µg/L | UJ | MS-A047801 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | C200.7 | N1 | SODIUM (TOTAL) | WG | 161.5 | 7840 | 385 | 5000 | µg/L | | MS-A047801 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | C200.7 | N1 | VANADIUM (TOTAL) | WG | 161.5 | ND | 1.5 | 50 | µg/L | U | MS-A047801 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | C200.7 | N1 | ZINC (TOTAL) | WG | 161.5 | ND | 4.8 | 20 | µg/L | U | MS-A047801 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | C245.1 | N1 | MERCURY (TOTAL) | WG | 161.5 | ND | 0.1 | 0.2 | µg/L | U | MS-A047801 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | C270.2 | N1 | SELENIUM (TOTAL) | WG | 161.5 | ND | 1.5 | 5 | µg/L | UJ | MS-A047801 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | C279.2 | N1 | THALLIUM (TOTAL) | WG | 161.5 | ND | 1.4 | 2 | µg/L | U | MS-A047801 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 161.5 | ND | 0.09 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 161.5 | ND | 0.13 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 161.5 | ND | 0.11 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 161.5 | ND | 0.07 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 161.5 | ND | 0.09 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 161.5 | ND | 0.14 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 161.5 | - | - | - | µg/L | R | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 161.5 | ND | 0.1 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 161.5 | ND | 0.08 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 161.5 | ND | 0.09 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 161.5 | ND | 0.15 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 161.5 | ND | 0.09 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 161.5 | ND | 0.1 | 1 | µg/L | U | MS-A047702 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | 2-HEXANONE | WG | 161.5 | ND | 0.83 | 5 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | ACETONE | WG | 161.5 | - | - | - | µg/L | R | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | BENZENE | WG | 161.5 | ND | 0.11 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 161.5 | ND | 0.1 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 161.5 | ND | 0.07 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | BROMOFORM | WG | 161.5 | ND | 0.19 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | BROMOMETHANE | WG | 161.5 | ND | 0.15 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 161.5 | ND | 0.08 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 161.5 | ND | 0.08 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | CHLOROBENZENE | WG | 161.5 | ND | 0.1 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | CHLOROETHANE | WG | 161.5 | ND | 0.08 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | CHLOROFORM | WG | 161.5 | ND | 0.08 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | CHLOROMETHANE | WG | 161.5 | ND | 0.1 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 161.5 | ND | 0.08 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 161.5 | ND | 0.07 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 161.5 | ND | 0.09 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | ETHYLBENZENE | WG | 161.5 | ND | 0.1 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 161.5 | - | - | - | µg/L | R | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 161.5 | ND | 0.72 | 5 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 161.5 | ND | 0.09 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 161.5 | ND | 0.08 | 2 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | STYRENE | WG | 161.5 | ND | 0.12 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 161.5 | ND | 0.11 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | TOLUENE | WG | 161.5 | 1 | 0.09 | 1 | µg/L | | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 161.5 | ND | 0.09 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 161.5 | ND | 0.08 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 161.5 | ND | 0.09 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 161.5 | ND | 0.08 | 1 | µg/L | U | MS-A047702 |
| 90JB0001D | 90JB0001D- | 12/12/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 161.5 | ND | 0.11 | 1 | µg/L | U | MS-A047702 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 131.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A044901 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 131.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A044901 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | C200.7 | N1 | ALUMINUM (TOTAL) | WG | 131.5 | ND | 77.9 | 395 | µg/L | U | MS-A045101 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | C200.7 | N1 | BARIUM (TOTAL) | WG | 131.5 | ND | 3.2 | 200 | µg/L | U | MS-A045101 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | C200.7 | N1 | BERYLLIUM (TOTAL) | WG | 131.5 | ND | 0.6 | 4 | µg/L | UJ | MS-A045101 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | C200.7 | N1 | CADMIUM (TOTAL) | WG | 131.5 | ND | 0.5 | 5 | µg/L | UJ | MS-A045101 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | C200.7 | N1 | CALCIUM (TOTAL) | WG | 131.5 | 1940 | 47.4 | 5000 | µg/L | J | MS-A045101 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | C200.7 | N1 | CHROMIUM (TOTAL) | WG | 131.5 | ND | 1 | 40 | µg/L | UJ | MS-A045101 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | C200.7 | N1 | COBALT (TOTAL) | WG | 131.5 | ND | 1.1 | 50 | µg/L | UJ | MS-A045101 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | C200.7 | N1 | COPPER (TOTAL) | WG | 131.5 | ND | 3.3 | 25 | µg/L | U | MS-A045101 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | C200.7 | N1 | IRON (TOTAL) | WG | 131.5 | ND | 75.8 | 219 | µg/L | U | MS-A045101 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | C200.7 | N1 | MAGNESIUM (TOTAL) | WG | 131.5 | 1250 | 41.6 | 5000 | µg/L | J | MS-A045101 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | C200.7 | N1 | MANGANESE (TOTAL) | WG | 131.5 | 3.6 | 1 | 15 | µg/L | J | MS-A045101 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | C200.7 | N1 | NICKEL (TOTAL) | WG | 131.5 | ND | 1.1 | 40 | µg/L | UJ | MS-A045101 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | C200.7 | N1 | POTASSIUM (TOTAL) | WG | 131.5 | ND | 1180 | 5000 | µg/L | U | MS-A045101 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | C200.7 | N1 | SILVER (TOTAL) | WG | 131.5 | ND | 0.6 | 10 | µg/L | UJ | MS-A045101 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | C200.7 | N1 | SODIUM (TOTAL) | WG | 131.5 | 7720 | 82.8 | 5000 | µg/L | | MS-A045101 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | C200.7 | N1 | VANADIUM (TOTAL) | WG | 131.5 | ND | 1.1 | 50 | µg/L | UJ | MS-A045101 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | C200.7 | N1 | ZINC (TOTAL) | WG | 131.5 | ND | 5.1 | 30 | µg/L | U | MS-A045101 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | C204.2 | N1 | ANTIMONY (TOTAL) | WG | 131.5 | ND | 2.6 | 6 | µg/L | UJ | MS-A045101 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | C206.2 | N1 | ARSENIC (TOTAL) | WG | 131.5 | ND | 1.6 | 10 | µg/L | U | MS-A045101 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90JB0004A | 90JB0004A- | 12/8/2000 | C239.2 | N1 | LEAD (TOTAL) | WG | 131.5 | ND | 1.3 | 3 | µg/L | UJ | MS-A045101 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | C245.1 | N1 | MERCURY (TOTAL) | WG | 131.5 | ND | 0.1 | 0.2 | µg/L | U | MS-A045101 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | C270.2 | N1 | SELENIUM (TOTAL) | WG | 131.5 | ND | 1.5 | 5 | µg/L | U | MS-A045101 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | C279.2 | N1 | THALLIUM (TOTAL) | WG | 131.5 | ND | 1.4 | 2 | µg/L | UJ | MS-A045101 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 131.5 | ND | 0.09 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 131.5 | ND | 0.13 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 131.5 | ND | 0.11 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 131.5 | ND | 0.07 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 131.5 | ND | 0.09 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 131.5 | ND | 0.14 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 131.5 | - | - | - | µg/L | R | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 131.5 | ND | 0.1 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 131.5 | ND | 0.08 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 131.5 | ND | 0.09 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 131.5 | ND | 0.15 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 131.5 | ND | 0.09 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 131.5 | ND | 0.1 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | 2-HEXANONE | WG | 131.5 | ND | 0.83 | 5 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | ACETONE | WG | 131.5 | - | - | - | µg/L | R | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | BENZENE | WG | 131.5 | ND | 0.11 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 131.5 | ND | 0.1 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 131.5 | ND | 0.07 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | BROMOFORM | WG | 131.5 | ND | 0.19 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | BROMOMETHANE | WG | 131.5 | ND | 0.15 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 131.5 | ND | 0.08 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 131.5 | ND | 0.08 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | CHLOROBENZENE | WG | 131.5 | ND | 0.1 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | CHLOROETHANE | WG | 131.5 | ND | 0.08 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | CHLOROFORM | WG | 131.5 | ND | 0.08 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | CHLOROMETHANE | WG | 131.5 | ND | 0.1 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 131.5 | ND | 0.08 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 131.5 | ND | 0.07 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 131.5 | ND | 0.09 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | ETHYLBENZENE | WG | 131.5 | ND | 0.1 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 131.5 | - | - | - | µg/L | R | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 131.5 | ND | 0.72 | 5 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 131.5 | ND | 0.09 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 131.5 | ND | 0.08 | 2 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | STYRENE | WG | 131.5 | ND | 0.12 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 131.5 | ND | 0.11 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | TOLUENE | WG | 131.5 | 4.1 | 0.09 | 1 | µg/L |  | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 131.5 | ND | 0.09 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 131.5 | ND | 0.08 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 131.5 | ND | 0.09 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 131.5 | ND | 0.08 | 1 | µg/L | U | MS-A044902 |
| 90JB0004A | 90JB0004A- | 12/8/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 131.5 | ND | 0.11 | 1 | µg/L | U | MS-A044902 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 99.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A044903 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 99.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A044903 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | C200.7 | N1 | ALUMINUM (TOTAL) | WG | 99.5 | ND | 54.7 | 200 | µg/L | U | MS-A045102 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | C200.7 | N1 | BARIUM (TOTAL) | WG | 99.5 | 6.3 | 0.2 | 200 | µg/L | J | MS-A045102 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90JB0004C | 90JB0004C- | 12/8/2000 | C200.7 | N1 | BERYLLIUM (TOTAL) | WG | 99.5 | ND | 0.6 | 4 | µg/L | UJ | MS-A045102 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | C200.7 | N1 | CADMIUM (TOTAL) | WG | 99.5 | ND | 0.5 | 5 | µg/L | UJ | MS-A045102 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | C200.7 | N1 | CALCIUM (TOTAL) | WG | 99.5 | 2350 | 47.4 | 5000 | µg/L | J | MS-A045102 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | C200.7 | N1 | CHROMIUM (TOTAL) | WG | 99.5 | ND | 1.6 | 40 | µg/L | UJ | MS-A045102 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | C200.7 | N1 | COBALT (TOTAL) | WG | 99.5 | 2.6 | 1.1 | 50 | µg/L | J | MS-A045102 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | C200.7 | N1 | COPPER (TOTAL) | WG | 99.5 | ND | 3.3 | 25 | µg/L | U | MS-A045102 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | C200.7 | N1 | IRON (TOTAL) | WG | 99.5 | ND | 35.1 | 100 | µg/L | U | MS-A045102 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | C200.7 | N1 | MAGNESIUM (TOTAL) | WG | 99.5 | 1940 | 41.6 | 5000 | µg/L | J | MS-A045102 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | C200.7 | N1 | MANGANESE (TOTAL) | WG | 99.5 | ND | 1 | 15 | µg/L | UJ | MS-A045102 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | C200.7 | N1 | NICKEL (TOTAL) | WG | 99.5 | ND | 1.1 | 40 | µg/L | UJ | MS-A045102 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | C200.7 | N1 | POTASSIUM (TOTAL) | WG | 99.5 | ND | 1180 | 5000 | µg/L | U | MS-A045102 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | C200.7 | N1 | SILVER (TOTAL) | WG | 99.5 | ND | 0.6 | 10 | µg/L | UJ | MS-A045102 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | C200.7 | N1 | SODIUM (TOTAL) | WG | 99.5 | 7650 | 82.8 | 5000 | µg/L | | MS-A045102 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | C200.7 | N1 | VANADIUM (TOTAL) | WG | 99.5 | ND | 1.1 | 50 | µg/L | UJ | MS-A045102 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | C200.7 | N1 | ZINC (TOTAL) | WG | 99.5 | ND | 6.5 | 30 | µg/L | U | MS-A045102 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | C204.2 | N1 | ANTIMONY (TOTAL) | WG | 99.5 | ND | 2.6 | 6 | µg/L | UJ | MS-A045102 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | C206.2 | N1 | ARSENIC (TOTAL) | WG | 99.5 | ND | 1.6 | 10 | µg/L | UJ | MS-A045102 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | C239.2 | N1 | LEAD (TOTAL) | WG | 99.5 | ND | 1.3 | 3 | µg/L | UJ | MS-A045102 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | C245.1 | N1 | MERCURY (TOTAL) | WG | 99.5 | ND | 0.1 | 0.2 | µg/L | U | MS-A045102 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | C270.2 | N1 | SELENIUM (TOTAL) | WG | 99.5 | ND | 1.5 | 5 | µg/L | U | MS-A045102 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | C279.2 | N1 | THALLIUM (TOTAL) | WG | 99.5 | ND | 1.4 | 2 | µg/L | UJ | MS-A045102 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 99.5 | ND | 0.09 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 99.5 | ND | 0.13 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 99.5 | ND | 0.11 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 99.5 | ND | 0.07 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 99.5 | ND | 0.09 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 99.5 | ND | 0.14 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 99.5 | - | - | - | µg/L | R | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 99.5 | ND | 0.1 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 99.5 | ND | 0.08 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 99.5 | ND | 0.09 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 99.5 | ND | 0.15 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 99.5 | ND | 0.09 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 99.5 | ND | 0.1 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | 2-HEXANONE | WG | 99.5 | ND | 0.83 | 5 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | ACETONE | WG | 99.5 | - | - | - | µg/L | R | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | BENZENE | WG | 99.5 | ND | 0.11 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 99.5 | ND | 0.1 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 99.5 | ND | 0.07 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | BROMOFORM | WG | 99.5 | ND | 0.19 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | BROMOMETHANE | WG | 99.5 | ND | 0.15 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 99.5 | ND | 0.08 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 99.5 | ND | 0.08 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | CHLOROBENZENE | WG | 99.5 | ND | 0.1 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | CHLOROETHANE | WG | 99.5 | ND | 0.08 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | CHLOROFORM | WG | 99.5 | 0.73 | 0.08 | 1 | µg/L | J | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | CHLOROMETHANE | WG | 99.5 | ND | 0.1 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 99.5 | ND | 0.08 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 99.5 | ND | 0.07 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 99.5 | ND | 0.09 | 1 | µg/L | U | MS-A044904 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | ETHYLBENZENE | WG | 99.5 | ND | 0.1 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 99.5 | - | - | - | µg/L | R | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 99.5 | ND | 0.72 | 5 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 99.5 | ND | 0.09 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 99.5 | ND | 0.08 | 2 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | STYRENE | WG | 99.5 | ND | 0.12 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 99.5 | ND | 0.11 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | TOLUENE | WG | 99.5 | ND | 0.09 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 99.5 | ND | 0.09 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 99.5 | ND | 0.08 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 99.5 | ND | 0.09 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 99.5 | ND | 0.08 | 1 | µg/L | U | MS-A044904 |
| 90JB0004C | 90JB0004C- | 12/8/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 99.5 | ND | 0.11 | 1 | µg/L | U | MS-A044904 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 153.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A045004 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 153.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A045004 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | E160.2 | N1 | SUSPENDED SOLIDS (RESIDUE, NON-FILT | WG | 153.5 | ND | 4 | 4 | MG/L | U | MS-A045006 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | C200.7 | N1 | ALUMINUM (TOTAL) | WG | 153.5 | ND | 78.8 | 395 | µg/L | U | MS-A045104 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | C200.7 | N1 | BARIUM (TOTAL) | WG | 153.5 | ND | 2.8 | 200 | µg/L | U | MS-A045104 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | C200.7 | N1 | BERYLLIUM (TOTAL) | WG | 153.5 | ND | 0.6 | 4 | µg/L | UJ | MS-A045104 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | C200.7 | N1 | CADMIUM (TOTAL) | WG | 153.5 | ND | 0.5 | 5 | µg/L | UJ | MS-A045104 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | C200.7 | N1 | CALCIUM (TOTAL) | WG | 153.5 | 2560 | 47.4 | 5000 | µg/L | J | MS-A045104 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | C200.7 | N1 | CHROMIUM (TOTAL) | WG | 153.5 | ND | 2.5 | 40 | µg/L | UJ | MS-A045104 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | C200.7 | N1 | COBALT (TOTAL) | WG | 153.5 | ND | 1.1 | 50 | µg/L | UJ | MS-A045104 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | C200.7 | N1 | COPPER (TOTAL) | WG | 153.5 | ND | 5.2 | 25 | µg/L | U | MS-A045104 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | C200.7 | N1 | IRON (TOTAL) | WG | 153.5 | ND | 57.2 | 219 | µg/L | U | MS-A045104 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | C200.7 | N1 | MAGNESIUM (TOTAL) | WG | 153.5 | 1320 | 41.6 | 5000 | µg/L | J | MS-A045104 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | C200.7 | N1 | MANGANESE (TOTAL) | WG | 153.5 | ND | 1 | 15 | µg/L | UJ | MS-A045104 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | C200.7 | N1 | NICKEL (TOTAL) | WG | 153.5 | ND | 1.1 | 40 | µg/L | UJ | MS-A045104 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | C200.7 | N1 | POTASSIUM (TOTAL) | WG | 153.5 | ND | 1180 | 5000 | µg/L | U | MS-A045104 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | C200.7 | N1 | SILVER (TOTAL) | WG | 153.5 | ND | 0.6 | 10 | µg/L | UJ | MS-A045104 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | C200.7 | N1 | SODIUM (TOTAL) | WG | 153.5 | 11900 | 82.8 | 5000 | µg/L |  | MS-A045104 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | C200.7 | N1 | VANADIUM (TOTAL) | WG | 153.5 | ND | 1.1 | 50 | µg/L | UJ | MS-A045104 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | C200.7 | N1 | ZINC (TOTAL) | WG | 153.5 | ND | 4.5 | 30 | µg/L | U | MS-A045104 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | C204.2 | N1 | ANTIMONY (TOTAL) | WG | 153.5 | ND | 2.6 | 6 | µg/L | UJ | MS-A045104 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | C206.2 | N1 | ARSENIC (TOTAL) | WG | 153.5 | ND | 1.6 | 10 | µg/L | U | MS-A045104 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | C239.2 | N1 | LEAD (TOTAL) | WG | 153.5 | ND | 1.3 | 3 | µg/L | UJ | MS-A045104 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | C245.1 | N1 | MERCURY (TOTAL) | WG | 153.5 | ND | 0.1 | 0.2 | µg/L | U | MS-A045104 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | C270.2 | N1 | SELENIUM (TOTAL) | WG | 153.5 | ND | 1.5 | 5 | µg/L | U | MS-A045104 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | C279.2 | N1 | THALLIUM (TOTAL) | WG | 153.5 | ND | 1.4 | 2 | µg/L | UJ | MS-A045104 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 153.5 | ND | 0.09 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 153.5 | ND | 0.13 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 153.5 | ND | 0.11 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 153.5 | ND | 0.07 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 153.5 | ND | 0.09 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 153.5 | ND | 0.14 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 153.5 | - | - | - | µg/L | R | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 153.5 | ND | 0.1 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 153.5 | ND | 0.08 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 153.5 | ND | 0.09 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 153.5 | ND | 0.15 | 1 | µg/L | U | MS-A045005 |

## Appendix D
## Analytical Laboratory Results
## October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 153.5 | ND | 0.09 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 153.5 | ND | 0.1 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | 2-HEXANONE | WG | 153.5 | ND | 0.83 | 5 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | ACETONE | WG | 153.5 | - | - | - | µg/L | R | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | BENZENE | WG | 153.5 | ND | 0.11 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 153.5 | ND | 0.1 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 153.5 | ND | 0.07 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | BROMOFORM | WG | 153.5 | ND | 0.19 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | BROMOMETHANE | WG | 153.5 | ND | 0.15 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 153.5 | ND | 0.08 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 153.5 | ND | 0.08 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | CHLOROBENZENE | WG | 153.5 | ND | 0.1 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | CHLOROETHANE | WG | 153.5 | ND | 0.08 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | CHLOROFORM | WG | 153.5 | ND | 0.08 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | CHLOROMETHANE | WG | 153.5 | ND | 0.1 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 153.5 | ND | 0.08 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 153.5 | ND | 0.07 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 153.5 | ND | 0.09 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | ETHYLBENZENE | WG | 153.5 | ND | 0.1 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 153.5 | - | - | - | µg/L | R | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 153.5 | ND | 0.72 | 5 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 153.5 | ND | 0.09 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 153.5 | ND | 0.51 | 5.5 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | STYRENE | WG | 153.5 | ND | 0.12 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 153.5 | ND | 0.11 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | TOLUENE | WG | 153.5 | ND | 0.09 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 153.5 | ND | 0.09 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 153.5 | ND | 0.08 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 153.5 | ND | 0.09 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 153.5 | ND | 0.08 | 1 | µg/L | U | MS-A045005 |
| 90JB0006B | 90JB0006B- | 12/8/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 153.5 | ND | 0.11 | 1 | µg/L | U | MS-A045005 |
| 90MP0059B | 90MP0059B- | 10/25/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 117.64 | 0.031 | 0.005 | 0.01 | µg/L | | MS-A035701 |
| 90MP0059B | 90MP0059B-FD | 10/25/2000 | E504 | FD1 | 1,2-DIBROMOETHANE (EDB) | WG | 117.64 | 0.032 | 0.005 | 0.01 | µg/L | | MS-A035702 |
| 90MP0060A | 90MP0060A- | 10/25/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 171.77 | 0.189 | 0.005 | 0.01 | µg/L | | MS-A035703 |
| 90MP0060B | 90MP0060B- | 10/25/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 152.27 | ND | 0.005 | 0.01 | µg/L | U | MS-A035704 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 103.27 | ND | 0.0056 | 0.01 | µg/L | U | MS-A045201 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | E504 | FD1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 103.27 | ND | 0.0056 | 0.01 | µg/L | U | MS-A045203 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 103.27 | ND | 0.0048 | 0.01 | µg/L | U | MS-A045201 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | E504 | FD1 | 1,2-DIBROMOETHANE (EDB) | WG | 103.27 | ND | 0.0048 | 0.01 | µg/L | U | MS-A045203 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | C200.7 | N1 | ALUMINUM (TOTAL) | WG | 103.27 | ND | 54.7 | 200 | µg/L | U | MS-A045301 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | C200.7 | FD1 | ALUMINUM (TOTAL) | WG | 103.27 | ND | 54.7 | 200 | µg/L | U | MS-A045302 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | C200.7 | FD1 | ANTIMONY (TOTAL) | WG | 103.27 | ND | 5.7 | 6 | µg/L | U | MS-A045302 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | C200.7 | N1 | ANTIMONY (TOTAL) | WG | 103.27 | ND | 5.7 | 6 | µg/L | U | MS-A045301 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | C200.7 | N1 | ARSENIC (TOTAL) | WG | 103.27 | ND | 4.3 | 10 | µg/L | U | MS-A045301 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | C200.7 | FD1 | ARSENIC (TOTAL) | WG | 103.27 | ND | 4.3 | 10 | µg/L | U | MS-A045302 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | C200.7 | N1 | BARIUM (TOTAL) | WG | 103.27 | 4.1 | 0.2 | 200 | µg/L | J | MS-A045301 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | C200.7 | FD1 | BARIUM (TOTAL) | WG | 103.27 | 3.5 | 0.2 | 200 | µg/L | J | MS-A045302 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | C200.7 | N1 | BERYLLIUM (TOTAL) | WG | 103.27 | ND | 0.6 | 4 | µg/L | U | MS-A045301 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | C200.7 | FD1 | BERYLLIUM (TOTAL) | WG | 103.27 | ND | 0.6 | 4 | µg/L | U | MS-A045302 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | C200.7 | N1 | CADMIUM (TOTAL) | WG | 103.27 | ND | 0.5 | 5 | µg/L | U | MS-A045301 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | C200.7 | FD1 | CADMIUM (TOTAL) | WG | 103.27 | ND | 0.5 | 5 | µg/L | U | MS-A045302 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | C200.7 | N1 | CALCIUM (TOTAL) | WG | 103.27 | 2300 | 47.4 | 5000 | µg/L | J | MS-A045301 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | C200.7 | FD1 | CALCIUM (TOTAL) | WG | 103.27 | 2290 | 47.4 | 5000 | µg/L | J | MS-A045302 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | C200.7 | FD1 | CHROMIUM (TOTAL) | WG | 103.27 | 0.8 | 0.7 | 10 | µg/L | J | MS-A045302 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | C200.7 | N1 | CHROMIUM (TOTAL) | WG | 103.27 | ND | 0.7 | 10 | µg/L | UJ | MS-A045301 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | C200.7 | FD1 | COBALT (TOTAL) | WG | 103.27 | ND | 1.1 | 50 | µg/L | U | MS-A045302 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | C200.7 | N1 | COBALT (TOTAL) | WG | 103.27 | ND | 1.1 | 50 | µg/L | U | MS-A045301 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | C200.7 | FD1 | COPPER (TOTAL) | WG | 103.27 | 4.1 | 1.6 | 25 | µg/L | J | MS-A045302 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | C200.7 | N1 | COPPER (TOTAL) | WG | 103.27 | ND | 1.6 | 25 | µg/L | UJ | MS-A045301 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | C200.7 | N1 | IRON (TOTAL) | WG | 103.27 | ND | 35.1 | 100 | µg/L | U | MS-A045301 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | C200.7 | FD1 | IRON (TOTAL) | WG | 103.27 | ND | 35.1 | 100 | µg/L | U | MS-A045302 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | C200.7 | FD1 | LEAD (TOTAL) | WG | 103.27 | ND | 2.4 | 3 | µg/L | U | MS-A045302 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | C200.7 | N1 | LEAD (TOTAL) | WG | 103.27 | ND | 2.4 | 3 | µg/L | U | MS-A045301 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | C200.7 | N1 | MAGNESIUM (TOTAL) | WG | 103.27 | 1340 | 59.4 | 5000 | µg/L | J | MS-A045301 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | C200.7 | FD1 | MAGNESIUM (TOTAL) | WG | 103.27 | 1330 | 59.4 | 5000 | µg/L | J | MS-A045302 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | C200.7 | N1 | MANGANESE (TOTAL) | WG | 103.27 | ND | 1 | 15 | µg/L | U | MS-A045301 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | C200.7 | FD1 | MANGANESE (TOTAL) | WG | 103.27 | ND | 1 | 15 | µg/L | U | MS-A045302 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | C200.7 | FD1 | NICKEL (TOTAL) | WG | 103.27 | ND | 1.1 | 40 | µg/L | U | MS-A045302 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | C200.7 | N1 | NICKEL (TOTAL) | WG | 103.27 | ND | 1.1 | 40 | µg/L | U | MS-A045301 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | C200.7 | N1 | POTASSIUM (TOTAL) | WG | 103.27 | 784 | 21 | 5000 | µg/L | J | MS-A045301 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | C200.7 | FD1 | POTASSIUM (TOTAL) | WG | 103.27 | 772 | 21 | 5000 | µg/L | J | MS-A045302 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | C200.7 | N1 | SILVER (TOTAL) | WG | 103.27 | ND | 0.6 | 10 | µg/L | UJ | MS-A045301 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | C200.7 | FD1 | SILVER (TOTAL) | WG | 103.27 | ND | 0.6 | 10 | µg/L | UJ | MS-A045302 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | C200.7 | FD1 | SODIUM (TOTAL) | WG | 103.27 | 10700 | 385 | 5000 | µg/L | | MS-A045302 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | C200.7 | N1 | SODIUM (TOTAL) | WG | 103.27 | 10900 | 385 | 5000 | µg/L | | MS-A045301 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | C200.7 | N1 | VANADIUM (TOTAL) | WG | 103.27 | ND | 1.1 | 50 | µg/L | U | MS-A045301 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | C200.7 | FD1 | VANADIUM (TOTAL) | WG | 103.27 | ND | 1.1 | 50 | µg/L | U | MS-A045302 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | C200.7 | N1 | ZINC (TOTAL) | WG | 103.27 | ND | 4 | 20 | µg/L | U | MS-A045301 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | C200.7 | FD1 | ZINC (TOTAL) | WG | 103.27 | ND | 3.9 | 20 | µg/L | U | MS-A045302 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | C245.1 | N1 | MERCURY (TOTAL) | WG | 103.27 | ND | 0.1 | 0.2 | µg/L | U | MS-A045301 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | C245.1 | FD1 | MERCURY (TOTAL) | WG | 103.27 | ND | 0.1 | 0.2 | µg/L | U | MS-A045302 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | C270.2 | FD1 | SELENIUM (TOTAL) | WG | 103.27 | ND | 1.5 | 5 | µg/L | U | MS-A045302 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | C270.2 | N1 | SELENIUM (TOTAL) | WG | 103.27 | ND | 1.5 | 5 | µg/L | U | MS-A045301 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | C279.2 | N1 | THALLIUM (TOTAL) | WG | 103.27 | ND | 1.4 | 2 | µg/L | U | MS-A045301 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | C279.2 | FD1 | THALLIUM (TOTAL) | WG | 103.27 | ND | 1.4 | 2 | µg/L | U | MS-A045302 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 103.27 | ND | 0.09 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | 1,1,1-TRICHLOROETHANE | WG | 103.27 | ND | 0.09 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 103.27 | ND | 0.13 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | 1,1,2,2-TETRACHLOROETHANE | WG | 103.27 | ND | 0.13 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 103.27 | ND | 0.11 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | 1,1,2-TRICHLOROETHANE | WG | 103.27 | ND | 0.11 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 103.27 | ND | 0.07 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | 1,1-DICHLOROETHANE | WG | 103.27 | ND | 0.07 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 103.27 | ND | 0.09 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | 1,1-DICHLOROETHENE | WG | 103.27 | ND | 0.09 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 103.27 | ND | 0.14 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | 1,2,4-TRICHLOROBENZENE | WG | 103.27 | ND | 0.14 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 103.27 | - | - | - | µg/L | R | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 103.27 | - | - | - | µg/L | R | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 103.27 | ND | 0.1 | 1 | µg/L | U | MS-A045202 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | 1,2-DIBROMOETHANE (EDB) | WG | 103.27 | ND | 0.1 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 103.27 | ND | 0.08 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | 1,2-DICHLOROBENZENE | WG | 103.27 | ND | 0.08 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 103.27 | ND | 0.09 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | 1,2-DICHLOROETHANE | WG | 103.27 | ND | 0.09 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 103.27 | ND | 0.15 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | 1,2-DICHLOROPROPANE | WG | 103.27 | ND | 0.15 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 103.27 | ND | 0.09 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | 1,3-DICHLOROBENZENE | WG | 103.27 | ND | 0.09 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 103.27 | ND | 0.1 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | 1,4-DICHLOROBENZENE | WG | 103.27 | ND | 0.1 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | 2-HEXANONE | WG | 103.27 | ND | 0.83 | 5 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | 2-HEXANONE | WG | 103.27 | ND | 0.83 | 5 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | ACETONE | WG | 103.27 | - | - | - | µg/L | R | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | ACETONE | WG | 103.27 | - | - | - | µg/L | R | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | BENZENE | WG | 103.27 | ND | 0.11 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | BENZENE | WG | 103.27 | ND | 0.11 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 103.27 | ND | 0.1 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | BROMOCHLOROMETHANE | WG | 103.27 | ND | 0.1 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 103.27 | ND | 0.07 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | BROMODICHLOROMETHANE | WG | 103.27 | ND | 0.07 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | BROMOFORM | WG | 103.27 | ND | 0.19 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | BROMOFORM | WG | 103.27 | ND | 0.19 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | BROMOMETHANE | WG | 103.27 | ND | 0.15 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | BROMOMETHANE | WG | 103.27 | ND | 0.15 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 103.27 | ND | 0.08 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | CARBON DISULFIDE | WG | 103.27 | ND | 0.08 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 103.27 | ND | 0.08 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | CARBON TETRACHLORIDE | WG | 103.27 | ND | 0.08 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | CHLOROBENZENE | WG | 103.27 | ND | 0.1 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | CHLOROBENZENE | WG | 103.27 | ND | 0.1 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | CHLOROETHANE | WG | 103.27 | ND | 0.08 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | CHLOROETHANE | WG | 103.27 | ND | 0.08 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | CHLOROFORM | WG | 103.27 | ND | 0.08 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | CHLOROFORM | WG | 103.27 | ND | 0.08 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | CHLOROMETHANE | WG | 103.27 | ND | 0.1 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | CHLOROMETHANE | WG | 103.27 | ND | 0.1 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 103.27 | ND | 0.08 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | CIS-1,2-DICHLOROETHENE | WG | 103.27 | ND | 0.08 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 103.27 | ND | 0.07 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | CIS-1,3-DICHLOROPROPENE | WG | 103.27 | ND | 0.07 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 103.27 | ND | 0.09 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | DIBROMOCHLOROMETHANE | WG | 103.27 | ND | 0.09 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | ETHYLBENZENE | WG | 103.27 | ND | 0.1 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | ETHYLBENZENE | WG | 103.27 | ND | 0.1 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 103.27 | - | - | - | µg/L | R | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 103.27 | - | - | - | µg/L | R | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 103.27 | ND | 0.72 | 5 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 103.27 | ND | 0.72 | 5 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 103.27 | ND | 0.09 | 1 | µg/L | U | MS-A045202 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 103.27 | ND | 0.09 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 103.27 | ND | 0.7 | 6.7 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | METHYLENE CHLORIDE | WG | 103.27 | ND | 0.75 | 6.7 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | STYRENE | WG | 103.27 | ND | 0.12 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | STYRENE | WG | 103.27 | ND | 0.12 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 103.27 | ND | 0.11 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | TETRACHLOROETHENE(PCE) | WG | 103.27 | ND | 0.11 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | TOLUENE | WG | 103.27 | 0.66 | 0.09 | 1 | µg/L | J | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | TOLUENE | WG | 103.27 | 0.7 | 0.09 | 1 | µg/L | J | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 103.27 | ND | 0.09 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | TRANS-1,2-DICHLOROETHENE | WG | 103.27 | ND | 0.09 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 103.27 | ND | 0.08 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | TRANS-1,3-DICHLOROPROPENE | WG | 103.27 | ND | 0.08 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 103.27 | ND | 0.09 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | TRICHLOROETHENE(TCE) | WG | 103.27 | ND | 0.09 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 103.27 | ND | 0.08 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | VINYL CHLORIDE | WG | 103.27 | ND | 0.08 | 1 | µg/L | U | MS-A045204 |
| 90MP0060D | 90MP0060D- | 12/13/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 103.27 | ND | 0.11 | 1 | µg/L | U | MS-A045202 |
| 90MP0060D | 90MP0060D-FD | 12/13/2000 | CVOL | FD1 | XYLENES, TOTAL | WG | 103.27 | ND | 0.11 | 1 | µg/L | U | MS-A045204 |
| 90MW0003 | 90MW0003- | 12/11/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 146.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A046501 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | E504 | FD1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 146.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A046503 |
| 90MW0003 | 90MW0003- | 12/11/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 146.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A046501 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | E504 | FD1 | 1,2-DIBROMOETHANE (EDB) | WG | 146.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A046503 |
| 90MW0003 | 90MW0003- | 12/11/2000 | C200.7 | N1 | ALUMINUM (TOTAL) | WG | 146.5 | ND | 54.7 | 200 | µg/L | U | MS-A046601 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | C200.7 | FD1 | ALUMINUM (TOTAL) | WG | 146.5 | ND | 57.8 | 323 | µg/L | U | MS-A046602 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | C200.7 | FD1 | ANTIMONY (TOTAL) | WG | 146.5 | ND | 5.7 | 6 | µg/L | U | MS-A046602 |
| 90MW0003 | 90MW0003- | 12/11/2000 | C200.7 | N1 | ANTIMONY (TOTAL) | WG | 146.5 | ND | 5.7 | 6 | µg/L | U | MS-A046601 |
| 90MW0003 | 90MW0003- | 12/11/2000 | C200.7 | N1 | ARSENIC (TOTAL) | WG | 146.5 | ND | 4.3 | 10 | µg/L | U | MS-A046601 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | C200.7 | FD1 | ARSENIC (TOTAL) | WG | 146.5 | ND | 4.3 | 10 | µg/L | U | MS-A046602 |
| 90MW0003 | 90MW0003- | 12/11/2000 | C200.7 | N1 | BARIUM (TOTAL) | WG | 146.5 | 5.3 | 0.2 | 200 | µg/L | J | MS-A046601 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | C200.7 | FD1 | BARIUM (TOTAL) | WG | 146.5 | 4.7 | 0.2 | 200 | µg/L | J | MS-A046602 |
| 90MW0003 | 90MW0003- | 12/11/2000 | C200.7 | N1 | BERYLLIUM (TOTAL) | WG | 146.5 | ND | 0.6 | 4 | µg/L | U | MS-A046601 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | C200.7 | FD1 | BERYLLIUM (TOTAL) | WG | 146.5 | ND | 0.6 | 4 | µg/L | U | MS-A046602 |
| 90MW0003 | 90MW0003- | 12/11/2000 | C200.7 | N1 | CADMIUM (TOTAL) | WG | 146.5 | ND | 0.5 | 5 | µg/L | UJ | MS-A046601 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | C200.7 | FD1 | CADMIUM (TOTAL) | WG | 146.5 | ND | 0.5 | 5 | µg/L | UJ | MS-A046602 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | C200.7 | FD1 | CALCIUM (TOTAL) | WG | 146.5 | 4140 | 47.4 | 5000 | µg/L | J | MS-A046602 |
| 90MW0003 | 90MW0003- | 12/11/2000 | C200.7 | N1 | CALCIUM (TOTAL) | WG | 146.5 | 4110 | 47.4 | 5000 | µg/L | J | MS-A046601 |
| 90MW0003 | 90MW0003- | 12/11/2000 | C200.7 | N1 | CHROMIUM (TOTAL) | WG | 146.5 | ND | 2.5 | 10 | µg/L | UJ | MS-A046601 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | C200.7 | FD1 | CHROMIUM (TOTAL) | WG | 146.5 | ND | 3.5 | 10 | µg/L | UJ | MS-A046602 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | C200.7 | FD1 | COBALT (TOTAL) | WG | 146.5 | 5.4 | 1.1 | 50 | µg/L | J | MS-A046602 |
| 90MW0003 | 90MW0003- | 12/11/2000 | C200.7 | N1 | COBALT (TOTAL) | WG | 146.5 | 4.5 | 1.1 | 50 | µg/L | J | MS-A046601 |
| 90MW0003 | 90MW0003- | 12/11/2000 | C200.7 | N1 | COPPER (TOTAL) | WG | 146.5 | ND | 1.6 | 25 | µg/L | UJ | MS-A046601 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | C200.7 | FD1 | COPPER (TOTAL) | WG | 146.5 | ND | 1.6 | 25 | µg/L | UJ | MS-A046602 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | C200.7 | FD1 | IRON (TOTAL) | WG | 146.5 | 800 | 35.1 | 100 | µg/L | | MS-A046602 |
| 90MW0003 | 90MW0003- | 12/11/2000 | C200.7 | N1 | IRON (TOTAL) | WG | 146.5 | 718 | 35.1 | 100 | µg/L | | MS-A046601 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | C200.7 | FD1 | LEAD (TOTAL) | WG | 146.5 | ND | 2.4 | 3 | µg/L | U | MS-A046602 |
| 90MW0003 | 90MW0003- | 12/11/2000 | C200.7 | N1 | LEAD (TOTAL) | WG | 146.5 | ND | 2.4 | 3 | µg/L | U | MS-A046601 |
| 90MW0003 | 90MW0003- | 12/11/2000 | C200.7 | N1 | MAGNESIUM (TOTAL) | WG | 146.5 | 2460 | 59.4 | 5000 | µg/L | J | MS-A046601 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | C200.7 | FD1 | MAGNESIUM (TOTAL) | WG | 146.5 | 2510 | 59.4 | 5000 | µg/L | J | MS-A046602 |
| 90MW0003 | 90MW0003- | 12/11/2000 | C200.7 | N1 | MANGANESE (TOTAL) | WG | 146.5 | 255 | 1 | 15 | µg/L | | MS-A046601 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0003 | 90MW0003-FD | 12/11/2000 | C200.7 | FD1 | MANGANESE (TOTAL) | WG | 146.5 | 258 | 1 | 15 | µg/L | | MS-A046602 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | C200.7 | FD1 | NICKEL (TOTAL) | WG | 146.5 | 3.4 | 1.1 | 40 | µg/L | J | MS-A046602 |
| 90MW0003 | 90MW0003- | 12/11/2000 | C200.7 | N1 | NICKEL (TOTAL) | WG | 146.5 | 3 | 1.1 | 40 | µg/L | J | MS-A046601 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | C200.7 | FD1 | POTASSIUM (TOTAL) | WG | 146.5 | 788 | 21 | 5000 | µg/L | J | MS-A046602 |
| 90MW0003 | 90MW0003- | 12/11/2000 | C200.7 | N1 | POTASSIUM (TOTAL) | WG | 146.5 | 792 | 21 | 5000 | µg/L | J | MS-A046601 |
| 90MW0003 | 90MW0003- | 12/11/2000 | C200.7 | N1 | SILVER (TOTAL) | WG | 146.5 | ND | 0.6 | 10 | µg/L | UJ | MS-A046601 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | C200.7 | FD1 | SILVER (TOTAL) | WG | 146.5 | ND | 0.6 | 10 | µg/L | UJ | MS-A046602 |
| 90MW0003 | 90MW0003- | 12/11/2000 | C200.7 | N1 | SODIUM (TOTAL) | WG | 146.5 | 8290 | 385 | 5000 | µg/L | | MS-A046601 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | C200.7 | FD1 | SODIUM (TOTAL) | WG | 146.5 | 8310 | 385 | 5000 | µg/L | | MS-A046602 |
| 90MW0003 | 90MW0003- | 12/11/2000 | C200.7 | N1 | VANADIUM (TOTAL) | WG | 146.5 | ND | 1.1 | 50 | µg/L | U | MS-A046601 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | C200.7 | FD1 | VANADIUM (TOTAL) | WG | 146.5 | ND | 1.1 | 50 | µg/L | U | MS-A046602 |
| 90MW0003 | 90MW0003- | 12/11/2000 | C200.7 | N1 | ZINC (TOTAL) | WG | 146.5 | ND | 5.2 | 20 | µg/L | U | MS-A046601 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | C200.7 | FD1 | ZINC (TOTAL) | WG | 146.5 | ND | 4.6 | 20 | µg/L | U | MS-A046602 |
| 90MW0003 | 90MW0003- | 12/11/2000 | C245.1 | N1 | MERCURY (TOTAL) | WG | 146.5 | ND | 0.1 | 0.2 | µg/L | U | MS-A046601 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | C245.1 | FD1 | MERCURY (TOTAL) | WG | 146.5 | ND | 0.1 | 0.2 | µg/L | U | MS-A046602 |
| 90MW0003 | 90MW0003- | 12/11/2000 | C270.2 | N1 | SELENIUM (TOTAL) | WG | 146.5 | ND | 1.5 | 5 | µg/L | U | MS-A046601 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | C270.2 | FD1 | SELENIUM (TOTAL) | WG | 146.5 | ND | 1.5 | 5 | µg/L | U | MS-A046602 |
| 90MW0003 | 90MW0003- | 12/11/2000 | C279.2 | N1 | THALLIUM (TOTAL) | WG | 146.5 | ND | 1.4 | 2 | µg/L | U | MS-A046601 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | C279.2 | FD1 | THALLIUM (TOTAL) | WG | 146.5 | ND | 1.4 | 2 | µg/L | U | MS-A046602 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 146.5 | ND | 0.09 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | 1,1,1-TRICHLOROETHANE | WG | 146.5 | ND | 0.09 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 146.5 | ND | 0.13 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | 1,1,2,2-TETRACHLOROETHANE | WG | 146.5 | ND | 0.13 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 146.5 | ND | 0.11 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | 1,1,2-TRICHLOROETHANE | WG | 146.5 | ND | 0.11 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 146.5 | ND | 0.07 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | 1,1-DICHLOROETHANE | WG | 146.5 | ND | 0.07 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 146.5 | ND | 0.09 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | 1,1-DICHLOROETHENE | WG | 146.5 | ND | 0.09 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 146.5 | ND | 0.14 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | 1,2,4-TRICHLOROBENZENE | WG | 146.5 | ND | 0.14 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 146.5 | - | - | - | µg/L | R | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 146.5 | - | - | - | µg/L | R | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 146.5 | ND | 0.1 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | 1,2-DIBROMOETHANE (EDB) | WG | 146.5 | ND | 0.1 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 146.5 | ND | 0.08 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | 1,2-DICHLOROBENZENE | WG | 146.5 | ND | 0.08 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 146.5 | ND | 0.09 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | 1,2-DICHLOROETHANE | WG | 146.5 | ND | 0.09 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 146.5 | ND | 0.15 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | 1,2-DICHLOROPROPANE | WG | 146.5 | ND | 0.15 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 146.5 | ND | 0.09 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | 1,3-DICHLOROBENZENE | WG | 146.5 | ND | 0.09 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 146.5 | ND | 0.1 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | 1,4-DICHLOROBENZENE | WG | 146.5 | ND | 0.1 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | 2-HEXANONE | WG | 146.5 | ND | 0.83 | 5 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | 2-HEXANONE | WG | 146.5 | ND | 0.83 | 5 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | ACETONE | WG | 146.5 | - | - | - | µg/L | R | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | ACETONE | WG | 146.5 | - | - | - | µg/L | R | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | BENZENE | WG | 146.5 | 1.1 | 0.11 | 1 | µg/L | | MS-A046502 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | BENZENE | WG | 146.5 | 1.1 | 0.11 | 1 | µg/L | | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 146.5 | ND | 0.1 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | BROMOCHLOROMETHANE | WG | 146.5 | ND | 0.1 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 146.5 | ND | 0.07 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | BROMODICHLOROMETHANE | WG | 146.5 | ND | 0.07 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | BROMOFORM | WG | 146.5 | ND | 0.19 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | BROMOFORM | WG | 146.5 | ND | 0.19 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | BROMOMETHANE | WG | 146.5 | ND | 0.15 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | BROMOMETHANE | WG | 146.5 | ND | 0.15 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 146.5 | ND | 0.08 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | CARBON DISULFIDE | WG | 146.5 | ND | 0.08 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 146.5 | ND | 0.08 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | CARBON TETRACHLORIDE | WG | 146.5 | ND | 0.08 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | CHLOROBENZENE | WG | 146.5 | ND | 0.1 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | CHLOROBENZENE | WG | 146.5 | ND | 0.1 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | CHLOROETHANE | WG | 146.5 | ND | 0.08 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | CHLOROETHANE | WG | 146.5 | ND | 0.08 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | CHLOROFORM | WG | 146.5 | ND | 0.08 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | CHLOROFORM | WG | 146.5 | ND | 0.08 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | CHLOROMETHANE | WG | 146.5 | ND | 0.1 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | CHLOROMETHANE | WG | 146.5 | ND | 0.1 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 146.5 | ND | 0.08 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | CIS-1,2-DICHLOROETHENE | WG | 146.5 | ND | 0.08 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 146.5 | ND | 0.07 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | CIS-1,3-DICHLOROPROPENE | WG | 146.5 | ND | 0.07 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 146.5 | ND | 0.09 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | DIBROMOCHLOROMETHANE | WG | 146.5 | ND | 0.09 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | ETHYLBENZENE | WG | 146.5 | ND | 0.1 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | ETHYLBENZENE | WG | 146.5 | ND | 0.1 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 146.5 | - | - | - | µg/L | R | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 146.5 | - | - | - | µg/L | R | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 146.5 | ND | 0.72 | 5 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 146.5 | ND | 0.72 | 5 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 146.5 | ND | 0.09 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 146.5 | ND | 0.09 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 146.5 | ND | 0.95 | 5.1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | METHYLENE CHLORIDE | WG | 146.5 | ND | 0.99 | 5.1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | STYRENE | WG | 146.5 | ND | 0.12 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | STYRENE | WG | 146.5 | ND | 0.12 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 146.5 | ND | 0.11 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | TETRACHLOROETHENE(PCE) | WG | 146.5 | ND | 0.11 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | TOLUENE | WG | 146.5 | ND | 0.09 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | TOLUENE | WG | 146.5 | ND | 0.09 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 146.5 | ND | 0.09 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | TRANS-1,2-DICHLOROETHENE | WG | 146.5 | ND | 0.09 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 146.5 | ND | 0.08 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | TRANS-1,3-DICHLOROPROPENE | WG | 146.5 | ND | 0.08 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 146.5 | ND | 0.09 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | TRICHLOROETHENE(TCE) | WG | 146.5 | ND | 0.09 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 146.5 | ND | 0.08 | 1 | µg/L | U | MS-A046502 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | VINYL CHLORIDE | WG | 146.5 | ND | 0.08 | 1 | µg/L | U | MS-A046504 |
| 90MW0003 | 90MW0003- | 12/11/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 146.5 | ND | 0.11 | 1 | µg/L | U | MS-A046502 |
| 90MW0003 | 90MW0003-FD | 12/11/2000 | CVOL | FD1 | XYLENES, TOTAL | WG | 146.5 | 0.53 | 0.11 | 1 | µg/L | J | MS-A046504 |
| 90MW0005 | 90MW0005- | 12/11/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 186.5 | ND | 0.056 | 0.1 | µg/L | U | MS-A046505 |
| 90MW0005 | 90MW0005- | 12/11/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 186.5 | 1.9 | 0.048 | 0.1 | µg/L | | MS-A046505 |
| 90MW0005 | 90MW0005- | 12/11/2000 | C200.7 | N1 | ALUMINUM (TOTAL) | WG | 186.5 | ND | 54.7 | 200 | µg/L | U | MS-A046603 |
| 90MW0005 | 90MW0005- | 12/11/2000 | C200.7 | N1 | ANTIMONY (TOTAL) | WG | 186.5 | ND | 5.7 | 6 | µg/L | U | MS-A046603 |
| 90MW0005 | 90MW0005- | 12/11/2000 | C200.7 | N1 | ARSENIC (TOTAL) | WG | 186.5 | ND | 4.3 | 10 | µg/L | U | MS-A046603 |
| 90MW0005 | 90MW0005- | 12/11/2000 | C200.7 | N1 | BARIUM (TOTAL) | WG | 186.5 | 4.1 | 0.2 | 200 | µg/L | J | MS-A046603 |
| 90MW0005 | 90MW0005- | 12/11/2000 | C200.7 | N1 | BERYLLIUM (TOTAL) | WG | 186.5 | ND | 0.6 | 4 | µg/L | U | MS-A046603 |
| 90MW0005 | 90MW0005- | 12/11/2000 | C200.7 | N1 | CADMIUM (TOTAL) | WG | 186.5 | ND | 0.5 | 5 | µg/L | UJ | MS-A046603 |
| 90MW0005 | 90MW0005- | 12/11/2000 | C200.7 | N1 | CALCIUM (TOTAL) | WG | 186.5 | 3880 | 47.4 | 5000 | µg/L | J | MS-A046603 |
| 90MW0005 | 90MW0005- | 12/11/2000 | C200.7 | N1 | CHROMIUM (TOTAL) | WG | 186.5 | ND | 2.5 | 10 | µg/L | UJ | MS-A046603 |
| 90MW0005 | 90MW0005- | 12/11/2000 | C200.7 | N1 | COBALT (TOTAL) | WG | 186.5 | ND | 1.1 | 50 | µg/L | UJ | MS-A046603 |
| 90MW0005 | 90MW0005- | 12/11/2000 | C200.7 | N1 | COPPER (TOTAL) | WG | 186.5 | ND | 1.6 | 25 | µg/L | UJ | MS-A046603 |
| 90MW0005 | 90MW0005- | 12/11/2000 | C200.7 | N1 | IRON (TOTAL) | WG | 186.5 | 77.5 | 35.1 | 100 | µg/L | J | MS-A046603 |
| 90MW0005 | 90MW0005- | 12/11/2000 | C200.7 | N1 | LEAD (TOTAL) | WG | 186.5 | ND | 2.4 | 3 | µg/L | U | MS-A046603 |
| 90MW0005 | 90MW0005- | 12/11/2000 | C200.7 | N1 | MAGNESIUM (TOTAL) | WG | 186.5 | 1800 | 59.4 | 5000 | µg/L | J | MS-A046603 |
| 90MW0005 | 90MW0005- | 12/11/2000 | C200.7 | N1 | MANGANESE (TOTAL) | WG | 186.5 | 336 | 1 | 15 | µg/L | | MS-A046603 |
| 90MW0005 | 90MW0005- | 12/11/2000 | C200.7 | N1 | NICKEL (TOTAL) | WG | 186.5 | 5.1 | 1.1 | 40 | µg/L | J | MS-A046603 |
| 90MW0005 | 90MW0005- | 12/11/2000 | C200.7 | N1 | POTASSIUM (TOTAL) | WG | 186.5 | 790 | 21 | 5000 | µg/L | J | MS-A046603 |
| 90MW0005 | 90MW0005- | 12/11/2000 | C200.7 | N1 | SILVER (TOTAL) | WG | 186.5 | ND | 0.6 | 10 | µg/L | UJ | MS-A046603 |
| 90MW0005 | 90MW0005- | 12/11/2000 | C200.7 | N1 | SODIUM (TOTAL) | WG | 186.5 | 8020 | 385 | 5000 | µg/L | | MS-A046603 |
| 90MW0005 | 90MW0005- | 12/11/2000 | C200.7 | N1 | VANADIUM (TOTAL) | WG | 186.5 | ND | 1.1 | 50 | µg/L | U | MS-A046603 |
| 90MW0005 | 90MW0005- | 12/11/2000 | C200.7 | N1 | ZINC (TOTAL) | WG | 186.5 | ND | 5.9 | 20 | µg/L | U | MS-A046603 |
| 90MW0005 | 90MW0005- | 12/11/2000 | C245.1 | N1 | MERCURY (TOTAL) | WG | 186.5 | ND | 0.1 | 0.2 | µg/L | U | MS-A046603 |
| 90MW0005 | 90MW0005- | 12/11/2000 | C270.2 | N1 | SELENIUM (TOTAL) | WG | 186.5 | ND | 1.5 | 5 | µg/L | UJ | MS-A046603 |
| 90MW0005 | 90MW0005- | 12/11/2000 | C279.2 | N1 | THALLIUM (TOTAL) | WG | 186.5 | ND | 1.4 | 2 | µg/L | U | MS-A046603 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 186.5 | ND | 0.09 | 1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 186.5 | ND | 0.13 | 1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 186.5 | ND | 0.11 | 1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 186.5 | ND | 0.07 | 1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 186.5 | ND | 0.09 | 1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 186.5 | ND | 0.14 | 1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 186.5 | - | - | - | µg/L | R | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 186.5 | 1.9 | 0.1 | 1 | µg/L | | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 186.5 | ND | 0.08 | 1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 186.5 | ND | 0.09 | 1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 186.5 | ND | 0.15 | 1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 186.5 | ND | 0.09 | 1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 186.5 | ND | 0.1 | 1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | 2-HEXANONE | WG | 186.5 | ND | 0.83 | 5 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | ACETONE | WG | 186.5 | - | - | - | µg/L | R | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | BENZENE | WG | 186.5 | 1.7 | 0.11 | 1 | µg/L | | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 186.5 | ND | 0.1 | 1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 186.5 | ND | 0.07 | 1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | BROMOFORM | WG | 186.5 | ND | 0.19 | 1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | BROMOMETHANE | WG | 186.5 | ND | 0.15 | 1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 186.5 | ND | 0.08 | 1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 186.5 | ND | 0.08 | 1 | µg/L | U | MS-A046506 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | CHLOROBENZENE | WG | 186.5 | ND | 0.1 | 1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | CHLOROETHANE | WG | 186.5 | ND | 0.08 | 1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | CHLOROFORM | WG | 186.5 | ND | 0.08 | 1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | CHLOROMETHANE | WG | 186.5 | ND | 0.1 | 1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 186.5 | ND | 0.08 | 1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 186.5 | ND | 0.07 | 1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 186.5 | ND | 0.09 | 1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | ETHYLBENZENE | WG | 186.5 | ND | 0.1 | 1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 186.5 | - | - | - | µg/L | R | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 186.5 | ND | 0.72 | 5 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 186.5 | ND | 0.09 | 1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 186.5 | ND | 0.58 | 5.1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | STYRENE | WG | 186.5 | ND | 0.12 | 1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 186.5 | ND | 0.11 | 1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | TOLUENE | WG | 186.5 | ND | 0.09 | 1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 186.5 | ND | 0.09 | 1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 186.5 | ND | 0.08 | 1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 186.5 | ND | 0.09 | 1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 186.5 | ND | 0.08 | 1 | µg/L | U | MS-A046506 |
| 90MW0005 | 90MW0005- | 12/11/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 186.5 | ND | 0.11 | 1 | µg/L | U | MS-A046506 |
| 90MW0015 | 90MW0015- | 12/13/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 99 | ND | 0.0056 | 0.01 | µg/L | U | MS-A048001 |
| 90MW0015 | 90MW0015- | 12/13/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 99 | ND | 0.0048 | 0.01 | µg/L | U | MS-A048001 |
| 90MW0015 | 90MW0015- | 12/13/2000 | C200.7 | N1 | ALUMINUM (TOTAL) | WG | 99 | ND | 127 | 464 | µg/L | U | MS-A048101 |
| 90MW0015 | 90MW0015- | 12/13/2000 | C200.7 | N1 | ANTIMONY (TOTAL) | WG | 99 | ND | 5.7 | 6 | µg/L | U | MS-A048101 |
| 90MW0015 | 90MW0015- | 12/13/2000 | C200.7 | N1 | ARSENIC (TOTAL) | WG | 99 | ND | 4.3 | 10 | µg/L | U | MS-A048101 |
| 90MW0015 | 90MW0015- | 12/13/2000 | C200.7 | N1 | BARIUM (TOTAL) | WG | 99 | ND | 2.4 | 200 | µg/L | U | MS-A048101 |
| 90MW0015 | 90MW0015- | 12/13/2000 | C200.7 | N1 | BERYLLIUM (TOTAL) | WG | 99 | ND | 0.6 | 4 | µg/L | U | MS-A048101 |
| 90MW0015 | 90MW0015- | 12/13/2000 | C200.7 | N1 | CADMIUM (TOTAL) | WG | 99 | 7.4 | 0.5 | 5 | µg/L |  | MS-A048101 |
| 90MW0015 | 90MW0015- | 12/13/2000 | C200.7 | N1 | CALCIUM (TOTAL) | WG | 99 | 1440 | 47.4 | 5000 | µg/L | J | MS-A048101 |
| 90MW0015 | 90MW0015- | 12/13/2000 | C200.7 | N1 | CHROMIUM (TOTAL) | WG | 99 | 9.7 | 0.7 | 10 | µg/L | J | MS-A048101 |
| 90MW0015 | 90MW0015- | 12/13/2000 | C200.7 | N1 | COBALT (TOTAL) | WG | 99 | ND | 3 | 50 | µg/L | U | MS-A048101 |
| 90MW0015 | 90MW0015- | 12/13/2000 | C200.7 | N1 | COPPER (TOTAL) | WG | 99 | ND | 1.6 | 25 | µg/L | UJ | MS-A048101 |
| 90MW0015 | 90MW0015- | 12/13/2000 | C200.7 | N1 | IRON (TOTAL) | WG | 99 | ND | 240 | 340 | µg/L | U | MS-A048101 |
| 90MW0015 | 90MW0015- | 12/13/2000 | C200.7 | N1 | LEAD (TOTAL) | WG | 99 | ND | 2.4 | 3 | µg/L | U | MS-A048101 |
| 90MW0015 | 90MW0015- | 12/13/2000 | C200.7 | N1 | MAGNESIUM (TOTAL) | WG | 99 | 800 | 59.4 | 5000 | µg/L | J | MS-A048101 |
| 90MW0015 | 90MW0015- | 12/13/2000 | C200.7 | N1 | MANGANESE (TOTAL) | WG | 99 | ND | 5.4 | 15 | µg/L | U | MS-A048101 |
| 90MW0015 | 90MW0015- | 12/13/2000 | C200.7 | N1 | NICKEL (TOTAL) | WG | 99 | ND | 4.6 | 40 | µg/L | U | MS-A048101 |
| 90MW0015 | 90MW0015- | 12/13/2000 | C200.7 | N1 | POTASSIUM (TOTAL) | WG | 99 | ND | 570 | 5000 | µg/L | U | MS-A048101 |
| 90MW0015 | 90MW0015- | 12/13/2000 | C200.7 | N1 | SILVER (TOTAL) | WG | 99 | ND | 0.6 | 10 | µg/L | UJ | MS-A048101 |
| 90MW0015 | 90MW0015- | 12/13/2000 | C200.7 | N1 | SODIUM (TOTAL) | WG | 99 | 11100 | 385 | 5000 | µg/L |  | MS-A048101 |
| 90MW0015 | 90MW0015- | 12/13/2000 | C200.7 | N1 | VANADIUM (TOTAL) | WG | 99 | ND | 1.1 | 50 | µg/L | U | MS-A048101 |
| 90MW0015 | 90MW0015- | 12/13/2000 | C200.7 | N1 | ZINC (TOTAL) | WG | 99 | ND | 2.3 | 20 | µg/L | U | MS-A048101 |
| 90MW0015 | 90MW0015- | 12/13/2000 | C245.1 | N1 | MERCURY (TOTAL) | WG | 99 | ND | 0.1 | 0.2 | µg/L | U | MS-A048101 |
| 90MW0015 | 90MW0015- | 12/13/2000 | C270.2 | N1 | SELENIUM (TOTAL) | WG | 99 | ND | 1.5 | 5 | µg/L | U | MS-A048101 |
| 90MW0015 | 90MW0015- | 12/13/2000 | C279.2 | N1 | THALLIUM (TOTAL) | WG | 99 | ND | 1.4 | 2 | µg/L | U | MS-A048101 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 99 | ND | 0.09 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 99 | ND | 0.13 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 99 | ND | 0.11 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 99 | ND | 0.07 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 99 | ND | 0.09 | 1 | µg/L | U | MS-A048002 |

## Appendix D
## Analytical Laboratory Results
## October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 99 | ND | 0.14 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 99 | - | - | - | µg/L | R | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 99 | ND | 0.1 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 99 | ND | 0.08 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 99 | ND | 0.09 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 99 | ND | 0.15 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 99 | ND | 0.09 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 99 | ND | 0.1 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | 2-HEXANONE | WG | 99 | ND | 0.83 | 5 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | ACETONE | WG | 99 | - | - | - | µg/L | R | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | BENZENE | WG | 99 | ND | 0.11 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 99 | ND | 0.1 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 99 | ND | 0.07 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | BROMOFORM | WG | 99 | ND | 0.19 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | BROMOMETHANE | WG | 99 | ND | 0.15 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 99 | ND | 0.08 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 99 | ND | 0.08 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | CHLOROBENZENE | WG | 99 | ND | 0.1 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | CHLOROETHANE | WG | 99 | ND | 0.08 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | CHLOROFORM | WG | 99 | ND | 0.08 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | CHLOROMETHANE | WG | 99 | ND | 0.1 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 99 | ND | 0.08 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 99 | ND | 0.07 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 99 | ND | 0.09 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | ETHYLBENZENE | WG | 99 | ND | 0.1 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 99 | - | - | - | µg/L | R | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 99 | ND | 0.72 | 5 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 99 | ND | 0.09 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 99 | ND | 0.71 | 6.7 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | STYRENE | WG | 99 | ND | 0.12 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 99 | ND | 0.11 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | TOLUENE | WG | 99 | ND | 0.09 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 99 | ND | 0.09 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 99 | ND | 0.08 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 99 | ND | 0.09 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 99 | ND | 0.08 | 1 | µg/L | U | MS-A048002 |
| 90MW0015 | 90MW0015- | 12/13/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 99 | ND | 0.11 | 1 | µg/L | U | MS-A048002 |
| 90MW0019 | 90MW0019- | 12/11/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 163.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A046507 |
| 90MW0019 | 90MW0019- | 12/11/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 163.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A046507 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 163.5 | ND | 0.09 | 1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 163.5 | ND | 0.13 | 1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 163.5 | ND | 0.11 | 1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 163.5 | ND | 0.07 | 1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 163.5 | ND | 0.09 | 1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 163.5 | ND | 0.14 | 1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 163.5 | - | - | - | µg/L | R | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 163.5 | ND | 0.1 | 1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 163.5 | ND | 0.08 | 1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 163.5 | ND | 0.09 | 1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 163.5 | ND | 0.15 | 1 | µg/L | U | MS-A046508 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 163.5 | ND | 0.09 | 1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 163.5 | ND | 0.1 | 1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | 2-HEXANONE | WG | 163.5 | ND | 0.83 | 5 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | ACETONE | WG | 163.5 | - | - | - | µg/L | R | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | BENZENE | WG | 163.5 | 0.56 | 0.11 | 1 | µg/L | J | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 163.5 | ND | 0.1 | 1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 163.5 | ND | 0.07 | 1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | BROMOFORM | WG | 163.5 | ND | 0.19 | 1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | BROMOMETHANE | WG | 163.5 | ND | 0.15 | 1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 163.5 | ND | 0.08 | 1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 163.5 | ND | 0.08 | 1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | CHLOROBENZENE | WG | 163.5 | ND | 0.1 | 1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | CHLOROETHANE | WG | 163.5 | ND | 0.08 | 1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | CHLOROFORM | WG | 163.5 | ND | 0.08 | 1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | CHLOROMETHANE | WG | 163.5 | ND | 0.1 | 1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 163.5 | ND | 0.08 | 1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 163.5 | ND | 0.07 | 1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 163.5 | ND | 0.09 | 1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | ETHYLBENZENE | WG | 163.5 | 3.1 | 0.1 | 1 | µg/L | | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 163.5 | - | - | - | µg/L | R | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 163.5 | ND | 0.72 | 5 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 163.5 | ND | 0.09 | 1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 163.5 | ND | 0.67 | 5.1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | STYRENE | WG | 163.5 | ND | 0.12 | 1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 163.5 | ND | 0.11 | 1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | TOLUENE | WG | 163.5 | ND | 0.09 | 1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 163.5 | ND | 0.09 | 1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 163.5 | ND | 0.08 | 1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 163.5 | ND | 0.09 | 1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 163.5 | ND | 0.08 | 1 | µg/L | U | MS-A046508 |
| 90MW0019 | 90MW0019- | 12/11/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 163.5 | 1.7 | 0.11 | 1 | µg/L | | MS-A046508 |
| 90MW0020 | 90MW0020- | 12/13/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 151 | ND | 0.0056 | 0.01 | µg/L | U | MS-A046303 |
| 90MW0020 | 90MW0020- | 12/13/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 151 | 0.35 | 0.0048 | 0.01 | µg/L | | MS-A046303 |
| 90MW0020 | 90MW0020- | 12/13/2000 | C200.7 | N1 | ALUMINUM (TOTAL) | WG | 151 | ND | 54.7 | 200 | µg/L | U | MS-A046402 |
| 90MW0020 | 90MW0020- | 12/13/2000 | C200.7 | N1 | ANTIMONY (TOTAL) | WG | 151 | ND | 5.7 | 6 | µg/L | U | MS-A046402 |
| 90MW0020 | 90MW0020- | 12/13/2000 | C200.7 | N1 | ARSENIC (TOTAL) | WG | 151 | ND | 4.3 | 10 | µg/L | U | MS-A046402 |
| 90MW0020 | 90MW0020- | 12/13/2000 | C200.7 | N1 | BARIUM (TOTAL) | WG | 151 | ND | 2 | 200 | µg/L | U | MS-A046402 |
| 90MW0020 | 90MW0020- | 12/13/2000 | C200.7 | N1 | BERYLLIUM (TOTAL) | WG | 151 | ND | 0.6 | 4 | µg/L | U | MS-A046402 |
| 90MW0020 | 90MW0020- | 12/13/2000 | C200.7 | N1 | CADMIUM (TOTAL) | WG | 151 | ND | 0.5 | 5 | µg/L | U | MS-A046402 |
| 90MW0020 | 90MW0020- | 12/13/2000 | C200.7 | N1 | CALCIUM (TOTAL) | WG | 151 | 2410 | 47.4 | 5000 | µg/L | J | MS-A046402 |
| 90MW0020 | 90MW0020- | 12/13/2000 | C200.7 | N1 | CHROMIUM (TOTAL) | WG | 151 | ND | 1.3 | 12 | µg/L | U | MS-A046402 |
| 90MW0020 | 90MW0020- | 12/13/2000 | C200.7 | N1 | COBALT (TOTAL) | WG | 151 | ND | 3.3 | 50 | µg/L | U | MS-A046402 |
| 90MW0020 | 90MW0020- | 12/13/2000 | C200.7 | N1 | COPPER (TOTAL) | WG | 151 | ND | 1.6 | 25 | µg/L | U | MS-A046402 |
| 90MW0020 | 90MW0020- | 12/13/2000 | C200.7 | N1 | IRON (TOTAL) | WG | 151 | 644 | 35.1 | 100 | µg/L | | MS-A046402 |
| 90MW0020 | 90MW0020- | 12/13/2000 | C200.7 | N1 | LEAD (TOTAL) | WG | 151 | ND | 2.4 | 3 | µg/L | U | MS-A046402 |
| 90MW0020 | 90MW0020- | 12/13/2000 | C200.7 | N1 | MAGNESIUM (TOTAL) | WG | 151 | 1300 | 59.4 | 5000 | µg/L | J | MS-A046402 |
| 90MW0020 | 90MW0020- | 12/13/2000 | C200.7 | N1 | MANGANESE (TOTAL) | WG | 151 | 191 | 1 | 15 | µg/L | | MS-A046402 |
| 90MW0020 | 90MW0020- | 12/13/2000 | C200.7 | N1 | NICKEL (TOTAL) | WG | 151 | ND | 1.7 | 40 | µg/L | U | MS-A046402 |
| 90MW0020 | 90MW0020- | 12/13/2000 | C200.7 | N1 | POTASSIUM (TOTAL) | WG | 151 | 620 | 21 | 5000 | µg/L | J | MS-A046402 |
| 90MW0020 | 90MW0020- | 12/13/2000 | C200.7 | N1 | SILVER (TOTAL) | WG | 151 | ND | 0.6 | 10 | µg/L | UJ | MS-A046402 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0020 | 90MW0020- | 12/13/2000 | C200.7 | N1 | SODIUM (TOTAL) | WG | 151 | 6490 | 385 | 5000 | µg/L | | MS-A046402 |
| 90MW0020 | 90MW0020- | 12/13/2000 | C200.7 | N1 | VANADIUM (TOTAL) | WG | 151 | ND | 1.1 | 50 | µg/L | U | MS-A046402 |
| 90MW0020 | 90MW0020- | 12/13/2000 | C200.7 | N1 | ZINC (TOTAL) | WG | 151 | ND | 2.8 | 20 | µg/L | U | MS-A046402 |
| 90MW0020 | 90MW0020- | 12/13/2000 | C245.1 | N1 | MERCURY (TOTAL) | WG | 151 | ND | 0.1 | 0.2 | µg/L | U | MS-A046402 |
| 90MW0020 | 90MW0020- | 12/13/2000 | C270.2 | N1 | SELENIUM (TOTAL) | WG | 151 | ND | 1.5 | 5 | µg/L | U | MS-A046402 |
| 90MW0020 | 90MW0020- | 12/13/2000 | C279.2 | N1 | THALLIUM (TOTAL) | WG | 151 | ND | 1.4 | 2 | µg/L | U | MS-A046402 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 151 | ND | 0.18 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 151 | ND | 0.26 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 151 | ND | 0.22 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 151 | ND | 0.14 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 151 | ND | 0.18 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 151 | ND | 0.28 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 151 | - | - | - | µg/L | R | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 151 | ND | 0.2 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 151 | ND | 0.16 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 151 | ND | 0.18 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 151 | ND | 0.3 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 151 | ND | 0.18 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 151 | ND | 0.2 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | 2-HEXANONE | WG | 151 | ND | 1.7 | 10 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | ACETONE | WG | 151 | - | - | - | µg/L | R | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | BENZENE | WG | 151 | 7 | 0.22 | 2 | µg/L | | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 151 | ND | 0.2 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 151 | ND | 0.14 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | BROMOFORM | WG | 151 | ND | 0.38 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | BROMOMETHANE | WG | 151 | ND | 0.3 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 151 | ND | 0.16 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 151 | ND | 0.16 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | CHLOROBENZENE | WG | 151 | ND | 0.2 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | CHLOROETHANE | WG | 151 | ND | 0.16 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | CHLOROFORM | WG | 151 | ND | 0.16 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | CHLOROMETHANE | WG | 151 | ND | 0.2 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 151 | ND | 0.16 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 151 | ND | 0.14 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 151 | ND | 0.18 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | ETHYLBENZENE | WG | 151 | ND | 0.2 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 151 | - | - | - | µg/L | R | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 151 | ND | 1.4 | 10 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 151 | ND | 0.18 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 151 | ND | 1.7 | 7.4 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | STYRENE | WG | 151 | ND | 0.24 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 151 | ND | 0.22 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | TOLUENE | WG | 151 | 35 | 0.18 | 2 | µg/L | | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 151 | ND | 0.18 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 151 | ND | 0.16 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 151 | ND | 0.18 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 151 | ND | 0.16 | 2 | µg/L | U | MS-A046304 |
| 90MW0020 | 90MW0020- | 12/13/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 151 | ND | 0.22 | 2 | µg/L | U | MS-A046304 |
| 90MW0025 | 90MW0025- | 12/13/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 162 | ND | 0.0056 | 0.01 | µg/L | U | MS-A046305 |
| 90MW0025 | 90MW0025- | 12/13/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 162 | 0.12 | 0.0048 | 0.01 | µg/L | | MS-A046305 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0025 | 90MW0025- | 12/13/2000 | C200.7 | N1 | ALUMINUM (TOTAL) | WG | 162 | ND | 54.7 | 200 | µg/L | U | MS-A046403 |
| 90MW0025 | 90MW0025- | 12/13/2000 | C200.7 | N1 | ANTIMONY (TOTAL) | WG | 162 | ND | 5.7 | 6 | µg/L | U | MS-A046403 |
| 90MW0025 | 90MW0025- | 12/13/2000 | C200.7 | N1 | ARSENIC (TOTAL) | WG | 162 | ND | 4.3 | 10 | µg/L | U | MS-A046403 |
| 90MW0025 | 90MW0025- | 12/13/2000 | C200.7 | N1 | BARIUM (TOTAL) | WG | 162 | ND | 1.8 | 200 | µg/L | U | MS-A046403 |
| 90MW0025 | 90MW0025- | 12/13/2000 | C200.7 | N1 | BERYLLIUM (TOTAL) | WG | 162 | ND | 0.6 | 4 | µg/L | U | MS-A046403 |
| 90MW0025 | 90MW0025- | 12/13/2000 | C200.7 | N1 | CADMIUM (TOTAL) | WG | 162 | ND | 0.5 | 5 | µg/L | U | MS-A046403 |
| 90MW0025 | 90MW0025- | 12/13/2000 | C200.7 | N1 | CALCIUM (TOTAL) | WG | 162 | 1610 | 47.4 | 5000 | µg/L | J | MS-A046403 |
| 90MW0025 | 90MW0025- | 12/13/2000 | C200.7 | N1 | CHROMIUM (TOTAL) | WG | 162 | ND | 0.7 | 10 | µg/L | UJ | MS-A046403 |
| 90MW0025 | 90MW0025- | 12/13/2000 | C200.7 | N1 | COBALT (TOTAL) | WG | 162 | ND | 1.1 | 50 | µg/L | U | MS-A046403 |
| 90MW0025 | 90MW0025- | 12/13/2000 | C200.7 | N1 | COPPER (TOTAL) | WG | 162 | 2 | 1.6 | 25 | µg/L | J | MS-A046403 |
| 90MW0025 | 90MW0025- | 12/13/2000 | C200.7 | N1 | IRON (TOTAL) | WG | 162 | ND | 42.7 | 340 | µg/L | U | MS-A046403 |
| 90MW0025 | 90MW0025- | 12/13/2000 | C200.7 | N1 | LEAD (TOTAL) | WG | 162 | ND | 2.4 | 3 | µg/L | U | MS-A046403 |
| 90MW0025 | 90MW0025- | 12/13/2000 | C200.7 | N1 | MAGNESIUM (TOTAL) | WG | 162 | 1030 | 59.4 | 5000 | µg/L | J | MS-A046403 |
| 90MW0025 | 90MW0025- | 12/13/2000 | C200.7 | N1 | MANGANESE (TOTAL) | WG | 162 | ND | 1 | 15 | µg/L | U | MS-A046403 |
| 90MW0025 | 90MW0025- | 12/13/2000 | C200.7 | N1 | NICKEL (TOTAL) | WG | 162 | ND | 1.6 | 40 | µg/L | U | MS-A046403 |
| 90MW0025 | 90MW0025- | 12/13/2000 | C200.7 | N1 | POTASSIUM (TOTAL) | WG | 162 | ND | 531 | 5000 | µg/L | U | MS-A046403 |
| 90MW0025 | 90MW0025- | 12/13/2000 | C200.7 | N1 | SILVER (TOTAL) | WG | 162 | ND | 0.6 | 10 | µg/L | UJ | MS-A046403 |
| 90MW0025 | 90MW0025- | 12/13/2000 | C200.7 | N1 | SODIUM (TOTAL) | WG | 162 | 6530 | 385 | 5000 | µg/L |  | MS-A046403 |
| 90MW0025 | 90MW0025- | 12/13/2000 | C200.7 | N1 | VANADIUM (TOTAL) | WG | 162 | ND | 1.1 | 50 | µg/L | U | MS-A046403 |
| 90MW0025 | 90MW0025- | 12/13/2000 | C200.7 | N1 | ZINC (TOTAL) | WG | 162 | ND | 6.5 | 20 | µg/L | U | MS-A046403 |
| 90MW0025 | 90MW0025- | 12/13/2000 | C245.1 | N1 | MERCURY (TOTAL) | WG | 162 | ND | 0.1 | 0.2 | µg/L | U | MS-A046403 |
| 90MW0025 | 90MW0025- | 12/13/2000 | C270.2 | N1 | SELENIUM (TOTAL) | WG | 162 | ND | 1.5 | 5 | µg/L | U | MS-A046403 |
| 90MW0025 | 90MW0025- | 12/13/2000 | C279.2 | N1 | THALLIUM (TOTAL) | WG | 162 | ND | 1.4 | 2 | µg/L | U | MS-A046403 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 162 | ND | 0.09 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 162 | ND | 0.13 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 162 | ND | 0.11 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 162 | ND | 0.07 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 162 | ND | 0.09 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 162 | ND | 0.14 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 162 | - | - | - | µg/L | R | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 162 | ND | 0.1 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 162 | ND | 0.08 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 162 | ND | 0.09 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 162 | ND | 0.15 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 162 | ND | 0.09 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 162 | ND | 0.1 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | 2-HEXANONE | WG | 162 | ND | 0.83 | 5 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | ACETONE | WG | 162 | - | - | - | µg/L | R | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | BENZENE | WG | 162 | ND | 0.11 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 162 | ND | 0.1 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 162 | ND | 0.07 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | BROMOFORM | WG | 162 | ND | 0.19 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | BROMOMETHANE | WG | 162 | ND | 0.15 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 162 | ND | 0.08 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 162 | ND | 0.08 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | CHLOROBENZENE | WG | 162 | ND | 0.1 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | CHLOROETHANE | WG | 162 | ND | 0.08 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | CHLOROFORM | WG | 162 | 1.9 | 0.08 | 1 | µg/L |  | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | CHLOROMETHANE | WG | 162 | ND | 0.1 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 162 | ND | 0.08 | 1 | µg/L | U | MS-A046306 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 162 | ND | 0.07 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 162 | ND | 0.09 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | ETHYLBENZENE | WG | 162 | ND | 0.1 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 162 | - | - | - | µg/L | R | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 162 | ND | 0.72 | 5 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 162 | ND | 0.09 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 162 | ND | 0.64 | 6.7 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | STYRENE | WG | 162 | ND | 0.12 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 162 | ND | 0.11 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | TOLUENE | WG | 162 | ND | 0.09 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 162 | ND | 0.09 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 162 | ND | 0.08 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 162 | ND | 0.09 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 162 | ND | 0.08 | 1 | µg/L | U | MS-A046306 |
| 90MW0025 | 90MW0025- | 12/13/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 162 | ND | 0.11 | 1 | µg/L | U | MS-A046306 |
| 90MW0027 | 90MW0027- | 12/13/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 166 | ND | 0.0056 | 0.01 | µg/L | U | MS-A046307 |
| 90MW0027 | 90MW0027- | 12/13/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 166 | ND | 0.0048 | 0.01 | µg/L | U | MS-A046307 |
| 90MW0027 | 90MW0027- | 12/13/2000 | C200.7 | N1 | ALUMINUM (TOTAL) | WG | 166 | ND | 85 | 464 | µg/L | U | MS-A046404 |
| 90MW0027 | 90MW0027- | 12/13/2000 | C200.7 | N1 | ANTIMONY (TOTAL) | WG | 166 | ND | 5.7 | 6 | µg/L | U | MS-A046404 |
| 90MW0027 | 90MW0027- | 12/13/2000 | C200.7 | N1 | ARSENIC (TOTAL) | WG | 166 | ND | 4.3 | 10 | µg/L | U | MS-A046404 |
| 90MW0027 | 90MW0027- | 12/13/2000 | C200.7 | N1 | BARIUM (TOTAL) | WG | 166 | ND | 1.4 | 200 | µg/L | U | MS-A046404 |
| 90MW0027 | 90MW0027- | 12/13/2000 | C200.7 | N1 | BERYLLIUM (TOTAL) | WG | 166 | ND | 0.6 | 4 | µg/L | U | MS-A046404 |
| 90MW0027 | 90MW0027- | 12/13/2000 | C200.7 | N1 | CADMIUM (TOTAL) | WG | 166 | ND | 0.5 | 5 | µg/L | U | MS-A046404 |
| 90MW0027 | 90MW0027- | 12/13/2000 | C200.7 | N1 | CALCIUM (TOTAL) | WG | 166 | 2820 | 47.4 | 5000 | µg/L | J | MS-A046404 |
| 90MW0027 | 90MW0027- | 12/13/2000 | C200.7 | N1 | CHROMIUM (TOTAL) | WG | 166 | 2 | 0.7 | 10 | µg/L | J | MS-A046404 |
| 90MW0027 | 90MW0027- | 12/13/2000 | C200.7 | N1 | COBALT (TOTAL) | WG | 166 | ND | 1.1 | 50 | µg/L | U | MS-A046404 |
| 90MW0027 | 90MW0027- | 12/13/2000 | C200.7 | N1 | COPPER (TOTAL) | WG | 166 | ND | 1.6 | 25 | µg/L | UJ | MS-A046404 |
| 90MW0027 | 90MW0027- | 12/13/2000 | C200.7 | N1 | IRON (TOTAL) | WG | 166 | ND | 43.1 | 340 | µg/L | U | MS-A046404 |
| 90MW0027 | 90MW0027- | 12/13/2000 | C200.7 | N1 | LEAD (TOTAL) | WG | 166 | ND | 2.4 | 3 | µg/L | U | MS-A046404 |
| 90MW0027 | 90MW0027- | 12/13/2000 | C200.7 | N1 | MAGNESIUM (TOTAL) | WG | 166 | 1210 | 59.4 | 5000 | µg/L | J | MS-A046404 |
| 90MW0027 | 90MW0027- | 12/13/2000 | C200.7 | N1 | MANGANESE (TOTAL) | WG | 166 | ND | 1 | 15 | µg/L | U | MS-A046404 |
| 90MW0027 | 90MW0027- | 12/13/2000 | C200.7 | N1 | NICKEL (TOTAL) | WG | 166 | ND | 1.4 | 40 | µg/L | U | MS-A046404 |
| 90MW0027 | 90MW0027- | 12/13/2000 | C200.7 | N1 | POTASSIUM (TOTAL) | WG | 166 | 706 | 21 | 5000 | µg/L | J | MS-A046404 |
| 90MW0027 | 90MW0027- | 12/13/2000 | C200.7 | N1 | SILVER (TOTAL) | WG | 166 | ND | 0.6 | 10 | µg/L | UJ | MS-A046404 |
| 90MW0027 | 90MW0027- | 12/13/2000 | C200.7 | N1 | SODIUM (TOTAL) | WG | 166 | 6580 | 385 | 5000 | µg/L | | MS-A046404 |
| 90MW0027 | 90MW0027- | 12/13/2000 | C200.7 | N1 | VANADIUM (TOTAL) | WG | 166 | ND | 1.1 | 50 | µg/L | U | MS-A046404 |
| 90MW0027 | 90MW0027- | 12/13/2000 | C200.7 | N1 | ZINC (TOTAL) | WG | 166 | ND | 2.2 | 20 | µg/L | U | MS-A046404 |
| 90MW0027 | 90MW0027- | 12/13/2000 | C245.1 | N1 | MERCURY (TOTAL) | WG | 166 | ND | 0.1 | 0.2 | µg/L | U | MS-A046404 |
| 90MW0027 | 90MW0027- | 12/13/2000 | C270.2 | N1 | SELENIUM (TOTAL) | WG | 166 | ND | 1.5 | 5 | µg/L | U | MS-A046404 |
| 90MW0027 | 90MW0027- | 12/13/2000 | C279.2 | N1 | THALLIUM (TOTAL) | WG | 166 | ND | 1.4 | 2 | µg/L | U | MS-A046404 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 166 | ND | 0.09 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 166 | ND | 0.13 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 166 | ND | 0.11 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 166 | ND | 0.07 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 166 | ND | 0.09 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 166 | ND | 0.14 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 166 | - | - | - | µg/L | R | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 166 | ND | 0.1 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 166 | ND | 0.08 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 166 | ND | 0.09 | 1 | µg/L | U | MS-A046308 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 166 | ND | 0.15 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 166 | ND | 0.09 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 166 | ND | 0.1 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | 2-HEXANONE | WG | 166 | ND | 0.83 | 5 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | ACETONE | WG | 166 | - | - | - | µg/L | R | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | BENZENE | WG | 166 | ND | 0.11 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 166 | ND | 0.1 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 166 | ND | 0.07 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | BROMOFORM | WG | 166 | ND | 0.19 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | BROMOMETHANE | WG | 166 | ND | 0.15 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 166 | ND | 0.08 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 166 | ND | 0.08 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | CHLOROBENZENE | WG | 166 | ND | 0.1 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | CHLOROETHANE | WG | 166 | ND | 0.08 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | CHLOROFORM | WG | 166 | 0.96 | 0.08 | 1 | µg/L | J | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | CHLOROMETHANE | WG | 166 | ND | 0.1 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 166 | ND | 0.08 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 166 | ND | 0.07 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 166 | ND | 0.09 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | ETHYLBENZENE | WG | 166 | ND | 0.1 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 166 | - | - | - | µg/L | R | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 166 | ND | 0.72 | 5 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 166 | ND | 0.09 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 166 | ND | 0.56 | 6.7 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | STYRENE | WG | 166 | ND | 0.12 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 166 | ND | 0.11 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | TOLUENE | WG | 166 | ND | 0.09 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 166 | ND | 0.09 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 166 | ND | 0.08 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 166 | ND | 0.09 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 166 | ND | 0.08 | 1 | µg/L | U | MS-A046308 |
| 90MW0027 | 90MW0027- | 12/13/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 166 | ND | 0.11 | 1 | µg/L | U | MS-A046308 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | E504 | FD1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 179 | ND | 0.056 | 0.1 | µg/L | U | MS-A046903 |
| 90MW0028 | 90MW0028- | 12/12/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 179 | ND | 0.056 | 0.1 | µg/L | U | MS-A046901 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | E504 | FD1 | 1,2-DIBROMOETHANE (EDB) | WG | 179 | 1.9 | 0.048 | 0.1 | µg/L |  | MS-A046903 |
| 90MW0028 | 90MW0028- | 12/12/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 179 | 1.9 | 0.048 | 0.1 | µg/L |  | MS-A046901 |
| 90MW0028 | 90MW0028- | 12/12/2000 | C200.7 | N1 | ALUMINUM (TOTAL) | WG | 179 | ND | 93.1 | 323 | µg/L | U | MS-A047001 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | C200.7 | FD1 | ALUMINUM (TOTAL) | WG | 179 | ND | 91 | 323 | µg/L | U | MS-A047002 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | C200.7 | FD1 | ANTIMONY (TOTAL) | WG | 179 | ND | 5.7 | 6 | µg/L | U | MS-A047002 |
| 90MW0028 | 90MW0028- | 12/12/2000 | C200.7 | N1 | ANTIMONY (TOTAL) | WG | 179 | ND | 5.7 | 6 | µg/L | U | MS-A047001 |
| 90MW0028 | 90MW0028- | 12/12/2000 | C200.7 | N1 | ARSENIC (TOTAL) | WG | 179 | ND | 4.3 | 10 | µg/L | U | MS-A047001 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | C200.7 | FD1 | ARSENIC (TOTAL) | WG | 179 | ND | 4.3 | 10 | µg/L | U | MS-A047002 |
| 90MW0028 | 90MW0028- | 12/12/2000 | C200.7 | N1 | BARIUM (TOTAL) | WG | 179 | 3.5 | 0.2 | 200 | µg/L | J | MS-A047001 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | C200.7 | FD1 | BARIUM (TOTAL) | WG | 179 | 3.6 | 0.2 | 200 | µg/L | J | MS-A047002 |
| 90MW0028 | 90MW0028- | 12/12/2000 | C200.7 | N1 | BERYLLIUM (TOTAL) | WG | 179 | ND | 0.6 | 4 | µg/L | U | MS-A047001 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | C200.7 | FD1 | BERYLLIUM (TOTAL) | WG | 179 | ND | 0.6 | 4 | µg/L | U | MS-A047002 |
| 90MW0028 | 90MW0028- | 12/12/2000 | C200.7 | N1 | CADMIUM (TOTAL) | WG | 179 | ND | 0.5 | 5 | µg/L | UJ | MS-A047001 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | C200.7 | FD1 | CADMIUM (TOTAL) | WG | 179 | ND | 0.5 | 5 | µg/L | UJ | MS-A047002 |
| 90MW0028 | 90MW0028- | 12/12/2000 | C200.7 | N1 | CALCIUM (TOTAL) | WG | 179 | 2120 | 47.4 | 5000 | µg/L | J | MS-A047001 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | C200.7 | FD1 | CALCIUM (TOTAL) | WG | 179 | 2130 | 47.4 | 5000 | µg/L | J | MS-A047002 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0028 | 90MW0028-FD | 12/12/2000 | C200.7 | FD1 | CHROMIUM (TOTAL) | WG | 179 | ND | 2.8 | 10 | µg/L | UJ | MS-A047002 |
| 90MW0028 | 90MW0028- | 12/12/2000 | C200.7 | N1 | CHROMIUM (TOTAL) | WG | 179 | ND | 6.4 | 10 | µg/L | U | MS-A047001 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | C200.7 | FD1 | COBALT (TOTAL) | WG | 179 | 1.9 | 1.1 | 50 | µg/L | J | MS-A047002 |
| 90MW0028 | 90MW0028- | 12/12/2000 | C200.7 | N1 | COBALT (TOTAL) | WG | 179 | ND | 1.1 | 50 | µg/L | UJ | MS-A047001 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | C200.7 | FD1 | COPPER (TOTAL) | WG | 179 | ND | 1.6 | 25 | µg/L | UJ | MS-A047002 |
| 90MW0028 | 90MW0028- | 12/12/2000 | C200.7 | N1 | COPPER (TOTAL) | WG | 179 | ND | 1.6 | 25 | µg/L | UJ | MS-A047001 |
| 90MW0028 | 90MW0028- | 12/12/2000 | C200.7 | N1 | IRON (TOTAL) | WG | 179 | 170 | 35.1 | 100 | µg/L |  | MS-A047001 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | C200.7 | FD1 | IRON (TOTAL) | WG | 179 | 111 | 35.1 | 100 | µg/L |  | MS-A047002 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | C200.7 | FD1 | LEAD (TOTAL) | WG | 179 | ND | 2.4 | 3 | µg/L | U | MS-A047002 |
| 90MW0028 | 90MW0028- | 12/12/2000 | C200.7 | N1 | LEAD (TOTAL) | WG | 179 | ND | 2.4 | 3 | µg/L | U | MS-A047001 |
| 90MW0028 | 90MW0028- | 12/12/2000 | C200.7 | N1 | MAGNESIUM (TOTAL) | WG | 179 | 996 | 59.4 | 5000 | µg/L | J | MS-A047001 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | C200.7 | FD1 | MAGNESIUM (TOTAL) | WG | 179 | 988 | 59.4 | 5000 | µg/L | J | MS-A047002 |
| 90MW0028 | 90MW0028- | 12/12/2000 | C200.7 | N1 | MANGANESE (TOTAL) | WG | 179 | 19 | 1 | 15 | µg/L |  | MS-A047001 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | C200.7 | FD1 | MANGANESE (TOTAL) | WG | 179 | 18.3 | 1 | 15 | µg/L |  | MS-A047002 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | C200.7 | FD1 | NICKEL (TOTAL) | WG | 179 | 3.6 | 1.1 | 40 | µg/L | J | MS-A047002 |
| 90MW0028 | 90MW0028- | 12/12/2000 | C200.7 | N1 | NICKEL (TOTAL) | WG | 179 | 5.3 | 1.1 | 40 | µg/L | J | MS-A047001 |
| 90MW0028 | 90MW0028- | 12/12/2000 | C200.7 | N1 | POTASSIUM (TOTAL) | WG | 179 | ND | 602 | 5000 | µg/L | U | MS-A047001 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | C200.7 | FD1 | POTASSIUM (TOTAL) | WG | 179 | ND | 611 | 5000 | µg/L | U | MS-A047002 |
| 90MW0028 | 90MW0028- | 12/12/2000 | C200.7 | N1 | SILVER (TOTAL) | WG | 179 | ND | 0.6 | 10 | µg/L | UJ | MS-A047001 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | C200.7 | FD1 | SILVER (TOTAL) | WG | 179 | ND | 0.6 | 10 | µg/L | UJ | MS-A047002 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | C200.7 | FD1 | SODIUM (TOTAL) | WG | 179 | 6490 | 385 | 5000 | µg/L |  | MS-A047002 |
| 90MW0028 | 90MW0028- | 12/12/2000 | C200.7 | N1 | SODIUM (TOTAL) | WG | 179 | 6730 | 385 | 5000 | µg/L |  | MS-A047001 |
| 90MW0028 | 90MW0028- | 12/12/2000 | C200.7 | N1 | VANADIUM (TOTAL) | WG | 179 | ND | 1.1 | 50 | µg/L | U | MS-A047001 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | C200.7 | FD1 | VANADIUM (TOTAL) | WG | 179 | ND | 1.1 | 50 | µg/L | U | MS-A047002 |
| 90MW0028 | 90MW0028- | 12/12/2000 | C200.7 | N1 | ZINC (TOTAL) | WG | 179 | ND | 7.6 | 20 | µg/L | U | MS-A047001 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | C200.7 | FD1 | ZINC (TOTAL) | WG | 179 | ND | 8.8 | 20 | µg/L | U | MS-A047002 |
| 90MW0028 | 90MW0028- | 12/12/2000 | C245.1 | N1 | MERCURY (TOTAL) | WG | 179 | ND | 0.1 | 0.2 | µg/L | U | MS-A047001 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | C245.1 | FD1 | MERCURY (TOTAL) | WG | 179 | ND | 0.1 | 0.2 | µg/L | U | MS-A047002 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | C270.2 | FD1 | SELENIUM (TOTAL) | WG | 179 | ND | 1.5 | 5 | µg/L | UJ | MS-A047002 |
| 90MW0028 | 90MW0028- | 12/12/2000 | C270.2 | N1 | SELENIUM (TOTAL) | WG | 179 | ND | 1.5 | 5 | µg/L | U | MS-A047001 |
| 90MW0028 | 90MW0028- | 12/12/2000 | C279.2 | N1 | THALLIUM (TOTAL) | WG | 179 | ND | 1.4 | 2 | µg/L | U | MS-A047001 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | C279.2 | FD1 | THALLIUM (TOTAL) | WG | 179 | ND | 1.4 | 2 | µg/L | U | MS-A047002 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | 1,1,1-TRICHLOROETHANE | WG | 179 | ND | 0.09 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 179 | ND | 0.09 | 1 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | 1,1,2,2-TETRACHLOROETHANE | WG | 179 | ND | 0.13 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 179 | ND | 0.13 | 1 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | 1,1,2-TRICHLOROETHANE | WG | 179 | ND | 0.11 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 179 | ND | 0.11 | 1 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | 1,1-DICHLOROETHANE | WG | 179 | ND | 0.07 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 179 | ND | 0.07 | 1 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | 1,1-DICHLOROETHENE | WG | 179 | ND | 0.09 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 179 | ND | 0.09 | 1 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | 1,2,4-TRICHLOROBENZENE | WG | 179 | ND | 0.14 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 179 | ND | 0.14 | 1 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 179 | - | - | - | µg/L | R | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 179 | - | - | - | µg/L | R | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | 1,2-DIBROMOETHANE (EDB) | WG | 179 | 1.9 | 0.1 | 1 | µg/L |  | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 179 | 1.9 | 0.1 | 1 | µg/L |  | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | 1,2-DICHLOROBENZENE | WG | 179 | ND | 0.08 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 179 | ND | 0.08 | 1 | µg/L | U | MS-A046902 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | 1,2-DICHLOROETHANE | WG | 179 | ND | 0.09 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 179 | ND | 0.09 | 1 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | 1,2-DICHLOROPROPANE | WG | 179 | ND | 0.15 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 179 | ND | 0.15 | 1 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | 1,3-DICHLOROBENZENE | WG | 179 | ND | 0.09 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 179 | ND | 0.09 | 1 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | 1,4-DICHLOROBENZENE | WG | 179 | ND | 0.1 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 179 | ND | 0.1 | 1 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | 2-HEXANONE | WG | 179 | ND | 0.83 | 5 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | 2-HEXANONE | WG | 179 | ND | 0.83 | 5 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | ACETONE | WG | 179 | - | - | - | µg/L | R | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | ACETONE | WG | 179 | - | - | - | µg/L | R | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | BENZENE | WG | 179 | ND | 0.11 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | BENZENE | WG | 179 | ND | 0.11 | 1 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | BROMOCHLOROMETHANE | WG | 179 | ND | 0.1 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 179 | ND | 0.1 | 1 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | BROMODICHLOROMETHANE | WG | 179 | ND | 0.07 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 179 | ND | 0.07 | 1 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | BROMOFORM | WG | 179 | ND | 0.19 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | BROMOFORM | WG | 179 | ND | 0.19 | 1 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | BROMOMETHANE | WG | 179 | ND | 0.15 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | BROMOMETHANE | WG | 179 | ND | 0.15 | 1 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | CARBON DISULFIDE | WG | 179 | ND | 0.08 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 179 | ND | 0.08 | 1 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | CARBON TETRACHLORIDE | WG | 179 | ND | 0.08 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 179 | ND | 0.08 | 1 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | CHLOROBENZENE | WG | 179 | ND | 0.1 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | CHLOROBENZENE | WG | 179 | ND | 0.1 | 1 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | CHLOROETHANE | WG | 179 | ND | 0.08 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | CHLOROETHANE | WG | 179 | ND | 0.08 | 1 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | CHLOROFORM | WG | 179 | 1.2 | 0.08 | 1 | µg/L |  | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | CHLOROFORM | WG | 179 | 1.3 | 0.08 | 1 | µg/L |  | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | CHLOROMETHANE | WG | 179 | ND | 0.1 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | CHLOROMETHANE | WG | 179 | ND | 0.1 | 1 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | CIS-1,2-DICHLOROETHENE | WG | 179 | ND | 0.08 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 179 | ND | 0.08 | 1 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | CIS-1,3-DICHLOROPROPENE | WG | 179 | ND | 0.07 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 179 | ND | 0.07 | 1 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | DIBROMOCHLOROMETHANE | WG | 179 | ND | 0.09 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 179 | ND | 0.09 | 1 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | ETHYLBENZENE | WG | 179 | ND | 0.1 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | ETHYLBENZENE | WG | 179 | ND | 0.1 | 1 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 179 | - | - | - | µg/L | R | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 179 | - | - | - | µg/L | R | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 179 | ND | 0.72 | 5 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 179 | ND | 0.72 | 5 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 179 | ND | 0.09 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 179 | ND | 0.09 | 1 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | METHYLENE CHLORIDE | WG | 179 | ND | 0.57 | 5.3 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 179 | ND | 0.71 | 5.3 | µg/L | U | MS-A046902 |

## Appendix D
## Analytical Laboratory Results
## October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | STYRENE | WG | 179 | ND | 0.12 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | STYRENE | WG | 179 | ND | 0.12 | 1 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | TETRACHLOROETHENE(PCE) | WG | 179 | ND | 0.11 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 179 | ND | 0.11 | 1 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | TOLUENE | WG | 179 | ND | 0.09 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | TOLUENE | WG | 179 | ND | 0.09 | 1 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | TRANS-1,2-DICHLOROETHENE | WG | 179 | ND | 0.09 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 179 | ND | 0.09 | 1 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | TRANS-1,3-DICHLOROPROPENE | WG | 179 | ND | 0.08 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 179 | ND | 0.08 | 1 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | TRICHLOROETHENE(TCE) | WG | 179 | ND | 0.09 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 179 | ND | 0.09 | 1 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | VINYL CHLORIDE | WG | 179 | ND | 0.08 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 179 | ND | 0.08 | 1 | µg/L | U | MS-A046902 |
| 90MW0028 | 90MW0028-FD | 12/12/2000 | CVOL | FD1 | XYLENES, TOTAL | WG | 179 | ND | 0.11 | 1 | µg/L | U | MS-A046904 |
| 90MW0028 | 90MW0028- | 12/12/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 179 | ND | 0.11 | 1 | µg/L | U | MS-A046902 |
| 90MW0033 | 90MW0033- | 12/14/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 157.21 | ND | 0.0056 | 0.01 | µg/L | U | MS-A049101 |
| 90MW0033 | 90MW0033- | 12/14/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 157.21 | ND | 0.0048 | 0.01 | µg/L | U | MS-A049101 |
| 90MW0033 | 90MW0033- | 12/14/2000 | C200.7 | N1 | ALUMINUM (TOTAL) | WG | 157.21 | 893 | 54.7 | 200 | µg/L | | MS-A049201 |
| 90MW0033 | 90MW0033- | 12/14/2000 | C200.7 | N1 | ANTIMONY (TOTAL) | WG | 157.21 | ND | 5.7 | 6 | µg/L | U | MS-A049201 |
| 90MW0033 | 90MW0033- | 12/14/2000 | C200.7 | N1 | ARSENIC (TOTAL) | WG | 157.21 | ND | 4.3 | 10 | µg/L | U | MS-A049201 |
| 90MW0033 | 90MW0033- | 12/14/2000 | C200.7 | N1 | BARIUM (TOTAL) | WG | 157.21 | 5.7 | 0.2 | 200 | µg/L | J | MS-A049201 |
| 90MW0033 | 90MW0033- | 12/14/2000 | C200.7 | N1 | BERYLLIUM (TOTAL) | WG | 157.21 | ND | 0.6 | 4 | µg/L | U | MS-A049201 |
| 90MW0033 | 90MW0033- | 12/14/2000 | C200.7 | N1 | CADMIUM (TOTAL) | WG | 157.21 | ND | 0.5 | 5 | µg/L | UJ | MS-A049201 |
| 90MW0033 | 90MW0033- | 12/14/2000 | C200.7 | N1 | CALCIUM (TOTAL) | WG | 157.21 | 2220 | 47.4 | 5000 | µg/L | J | MS-A049201 |
| 90MW0033 | 90MW0033- | 12/14/2000 | C200.7 | N1 | CHROMIUM (TOTAL) | WG | 157.21 | 12.5 | 0.7 | 10 | µg/L | | MS-A049201 |
| 90MW0033 | 90MW0033- | 12/14/2000 | C200.7 | N1 | COBALT (TOTAL) | WG | 157.21 | 1.4 | 1.1 | 50 | µg/L | J | MS-A049201 |
| 90MW0033 | 90MW0033- | 12/14/2000 | C200.7 | N1 | COPPER (TOTAL) | WG | 157.21 | 14 | 1.6 | 25 | µg/L | J | MS-A049201 |
| 90MW0033 | 90MW0033- | 12/14/2000 | C200.7 | N1 | IRON (TOTAL) | WG | 157.21 | 1350 | 35.1 | 100 | µg/L | | MS-A049201 |
| 90MW0033 | 90MW0033- | 12/14/2000 | C200.7 | N1 | LEAD (TOTAL) | WG | 157.21 | ND | 2.4 | 3 | µg/L | U | MS-A049201 |
| 90MW0033 | 90MW0033- | 12/14/2000 | C200.7 | N1 | MAGNESIUM (TOTAL) | WG | 157.21 | 1200 | 59.4 | 5000 | µg/L | J | MS-A049201 |
| 90MW0033 | 90MW0033- | 12/14/2000 | C200.7 | N1 | MANGANESE (TOTAL) | WG | 157.21 | 13.3 | 1 | 15 | µg/L | J | MS-A049201 |
| 90MW0033 | 90MW0033- | 12/14/2000 | C200.7 | N1 | NICKEL (TOTAL) | WG | 157.21 | 37.5 | 1.1 | 40 | µg/L | J | MS-A049201 |
| 90MW0033 | 90MW0033- | 12/14/2000 | C200.7 | N1 | POTASSIUM (TOTAL) | WG | 157.21 | 973 | 21 | 5000 | µg/L | J | MS-A049201 |
| 90MW0033 | 90MW0033- | 12/14/2000 | C200.7 | N1 | SILVER (TOTAL) | WG | 157.21 | ND | 0.6 | 10 | µg/L | UJ | MS-A049201 |
| 90MW0033 | 90MW0033- | 12/14/2000 | C200.7 | N1 | SODIUM (TOTAL) | WG | 157.21 | 7740 | 385 | 5000 | µg/L | | MS-A049201 |
| 90MW0033 | 90MW0033- | 12/14/2000 | C200.7 | N1 | VANADIUM (TOTAL) | WG | 157.21 | ND | 3.5 | 50 | µg/L | U | MS-A049201 |
| 90MW0033 | 90MW0033- | 12/14/2000 | C200.7 | N1 | ZINC (TOTAL) | WG | 157.21 | ND | 14 | 20 | µg/L | U | MS-A049201 |
| 90MW0033 | 90MW0033- | 12/14/2000 | C245.1 | N1 | MERCURY (TOTAL) | WG | 157.21 | ND | 0.1 | 0.2 | µg/L | U | MS-A049201 |
| 90MW0033 | 90MW0033- | 12/14/2000 | C270.2 | N1 | SELENIUM (TOTAL) | WG | 157.21 | ND | 1.5 | 5 | µg/L | U | MS-A049201 |
| 90MW0033 | 90MW0033- | 12/14/2000 | C279.2 | N1 | THALLIUM (TOTAL) | WG | 157.21 | ND | 1.4 | 2 | µg/L | U | MS-A049201 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 157.21 | ND | 0.09 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 157.21 | ND | 0.13 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 157.21 | ND | 0.11 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 157.21 | ND | 0.07 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 157.21 | ND | 0.09 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 157.21 | ND | 0.14 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 157.21 | - | - | - | µg/L | R | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 157.21 | ND | 0.1 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 157.21 | ND | 0.08 | 1 | µg/L | U | MS-A049102 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 157.21 | ND | 0.09 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 157.21 | ND | 0.15 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 157.21 | ND | 0.09 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 157.21 | ND | 0.1 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | 2-HEXANONE | WG | 157.21 | ND | 0.83 | 5 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | ACETONE | WG | 157.21 | - | - | - | µg/L | R | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | BENZENE | WG | 157.21 | ND | 0.11 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 157.21 | ND | 0.1 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 157.21 | ND | 0.07 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | BROMOFORM | WG | 157.21 | ND | 0.19 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | BROMOMETHANE | WG | 157.21 | ND | 0.15 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 157.21 | ND | 0.08 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 157.21 | ND | 0.08 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | CHLOROBENZENE | WG | 157.21 | ND | 0.1 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | CHLOROETHANE | WG | 157.21 | ND | 0.08 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | CHLOROFORM | WG | 157.21 | 0.81 | 0.08 | 1 | µg/L | J | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | CHLOROMETHANE | WG | 157.21 | ND | 0.1 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 157.21 | ND | 0.08 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 157.21 | ND | 0.07 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 157.21 | ND | 0.09 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | ETHYLBENZENE | WG | 157.21 | ND | 0.1 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 157.21 | - | - | - | µg/L | R | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 157.21 | ND | 0.72 | 5 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 157.21 | ND | 0.09 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 157.21 | ND | 0.73 | 5.3 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | STYRENE | WG | 157.21 | ND | 0.12 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 157.21 | ND | 0.11 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | TOLUENE | WG | 157.21 | ND | 0.09 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 157.21 | ND | 0.09 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 157.21 | ND | 0.08 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 157.21 | ND | 0.09 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 157.21 | ND | 0.08 | 1 | µg/L | U | MS-A049102 |
| 90MW0033 | 90MW0033- | 12/14/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 157.21 | ND | 0.11 | 1 | µg/L | U | MS-A049102 |
| 90MW0036 | 90MW0036- | 12/14/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 107.08 | ND | 0.0056 | 0.01 | µg/L | U | MS-A049401 |
| 90MW0036 | 90MW0036- | 12/14/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 107.08 | ND | 0.0048 | 0.01 | µg/L | U | MS-A049401 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 107.08 | ND | 0.09 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 107.08 | ND | 0.13 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 107.08 | ND | 0.11 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 107.08 | ND | 0.07 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 107.08 | ND | 0.09 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 107.08 | ND | 0.14 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 107.08 | - | - | - | µg/L | R | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 107.08 | ND | 0.1 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 107.08 | ND | 0.08 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 107.08 | ND | 0.09 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 107.08 | ND | 0.15 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 107.08 | ND | 0.09 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 107.08 | ND | 0.1 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | 2-HEXANONE | WG | 107.08 | ND | 0.83 | 5 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | ACETONE | WG | 107.08 | - | - | - | µg/L | R | MS-A049402 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | BENZENE | WG | 107.08 | ND | 0.11 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 107.08 | ND | 0.1 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 107.08 | ND | 0.07 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | BROMOFORM | WG | 107.08 | ND | 0.19 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | BROMOMETHANE | WG | 107.08 | ND | 0.15 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 107.08 | ND | 0.08 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 107.08 | ND | 0.08 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | CHLOROBENZENE | WG | 107.08 | ND | 0.1 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | CHLOROETHANE | WG | 107.08 | ND | 0.08 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | CHLOROFORM | WG | 107.08 | 0.92 | 0.08 | 1 | µg/L | J | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | CHLOROMETHANE | WG | 107.08 | ND | 0.1 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 107.08 | ND | 0.08 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 107.08 | ND | 0.07 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 107.08 | ND | 0.09 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | ETHYLBENZENE | WG | 107.08 | ND | 0.1 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 107.08 | - | - | - | µg/L | R | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 107.08 | ND | 0.72 | 5 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 107.08 | ND | 0.09 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 107.08 | ND | 0.08 | 2 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | STYRENE | WG | 107.08 | ND | 0.12 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 107.08 | ND | 0.11 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | TOLUENE | WG | 107.08 | ND | 0.09 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 107.08 | ND | 0.09 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 107.08 | ND | 0.08 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 107.08 | ND | 0.09 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 107.08 | ND | 0.08 | 1 | µg/L | U | MS-A049402 |
| 90MW0036 | 90MW0036- | 12/14/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 107.08 | ND | 0.11 | 1 | µg/L | U | MS-A049402 |
| 90MW0040 | 90MW0040- | 12/14/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 190.09 | ND | 0.56 | 1 | µg/L | U | MS-A048801 |
| 90MW0040 | 90MW0040- | 12/14/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 190.09 | 22 | 0.48 | 1 | µg/L | | MS-A048801 |
| 90MW0040 | 90MW0040- | 12/14/2000 | C200.7 | N1 | ALUMINUM (TOTAL) | WG | 190.09 | ND | 54.7 | 200 | µg/L | U | MS-A048901 |
| 90MW0040 | 90MW0040- | 12/14/2000 | C200.7 | N1 | ANTIMONY (TOTAL) | WG | 190.09 | ND | 5.7 | 6 | µg/L | U | MS-A048901 |
| 90MW0040 | 90MW0040- | 12/14/2000 | C200.7 | N1 | ARSENIC (TOTAL) | WG | 190.09 | ND | 4.3 | 10 | µg/L | U | MS-A048901 |
| 90MW0040 | 90MW0040- | 12/14/2000 | C200.7 | N1 | BARIUM (TOTAL) | WG | 190.09 | ND | 1.3 | 200 | µg/L | UJ | MS-A048901 |
| 90MW0040 | 90MW0040- | 12/14/2000 | C200.7 | N1 | BERYLLIUM (TOTAL) | WG | 190.09 | ND | 0.6 | 4 | µg/L | U | MS-A048901 |
| 90MW0040 | 90MW0040- | 12/14/2000 | C200.7 | N1 | CADMIUM (TOTAL) | WG | 190.09 | ND | 0.5 | 5 | µg/L | UJ | MS-A048901 |
| 90MW0040 | 90MW0040- | 12/14/2000 | C200.7 | N1 | CALCIUM (TOTAL) | WG | 190.09 | 2030 | 47.4 | 5000 | µg/L | J | MS-A048901 |
| 90MW0040 | 90MW0040- | 12/14/2000 | C200.7 | N1 | CHROMIUM (TOTAL) | WG | 190.09 | ND | 1.4 | 10 | µg/L | UJ | MS-A048901 |
| 90MW0040 | 90MW0040- | 12/14/2000 | C200.7 | N1 | COBALT (TOTAL) | WG | 190.09 | ND | 1.1 | 50 | µg/L | UJ | MS-A048901 |
| 90MW0040 | 90MW0040- | 12/14/2000 | C200.7 | N1 | COPPER (TOTAL) | WG | 190.09 | ND | 1.6 | 25 | µg/L | UJ | MS-A048901 |
| 90MW0040 | 90MW0040- | 12/14/2000 | C200.7 | N1 | IRON (TOTAL) | WG | 190.09 | 49.1 | 35.1 | 100 | µg/L | J | MS-A048901 |
| 90MW0040 | 90MW0040- | 12/14/2000 | C200.7 | N1 | LEAD (TOTAL) | WG | 190.09 | ND | 2.4 | 3 | µg/L | U | MS-A048901 |
| 90MW0040 | 90MW0040- | 12/14/2000 | C200.7 | N1 | MAGNESIUM (TOTAL) | WG | 190.09 | 806 | 59.4 | 5000 | µg/L | J | MS-A048901 |
| 90MW0040 | 90MW0040- | 12/14/2000 | C200.7 | N1 | MANGANESE (TOTAL) | WG | 190.09 | ND | 2.3 | 15 | µg/L | U | MS-A048901 |
| 90MW0040 | 90MW0040- | 12/14/2000 | C200.7 | N1 | NICKEL (TOTAL) | WG | 190.09 | 1.9 | 1.1 | 40 | µg/L | J | MS-A048901 |
| 90MW0040 | 90MW0040- | 12/14/2000 | C200.7 | N1 | POTASSIUM (TOTAL) | WG | 190.09 | ND | 565 | 5000 | µg/L | U | MS-A048901 |
| 90MW0040 | 90MW0040- | 12/14/2000 | C200.7 | N1 | SILVER (TOTAL) | WG | 190.09 | ND | 0.6 | 10 | µg/L | UJ | MS-A048901 |
| 90MW0040 | 90MW0040- | 12/14/2000 | C200.7 | N1 | SODIUM (TOTAL) | WG | 190.09 | 6860 | 385 | 5000 | µg/L | J | MS-A048901 |
| 90MW0040 | 90MW0040- | 12/14/2000 | C200.7 | N1 | VANADIUM (TOTAL) | WG | 190.09 | ND | 1.1 | 50 | µg/L | U | MS-A048901 |
| 90MW0040 | 90MW0040- | 12/14/2000 | C200.7 | N1 | ZINC (TOTAL) | WG | 190.09 | ND | 4.1 | 20 | µg/L | U | MS-A048901 |
| 90MW0040 | 90MW0040- | 12/14/2000 | C245.1 | N1 | MERCURY (TOTAL) | WG | 190.09 | ND | 0.1 | 0.2 | µg/L | U | MS-A048901 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0040 | 90MW0040- | 12/14/2000 | C270.2 | N1 | SELENIUM (TOTAL) | WG | 190.09 | ND | 1.5 | 5 | µg/L | U | MS-A048901 |
| 90MW0040 | 90MW0040- | 12/14/2000 | C279.2 | N1 | THALLIUM (TOTAL) | WG | 190.09 | ND | 1.4 | 2 | µg/L | U | MS-A048901 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 190.09 | ND | 0.09 | 1 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 190.09 | ND | 0.13 | 1 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 190.09 | ND | 0.11 | 1 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 190.09 | ND | 0.07 | 1 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 190.09 | ND | 0.09 | 1 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 190.09 | ND | 0.14 | 1 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 190.09 | - | - | - | µg/L | R | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 190.09 | 24 | 0.1 | 1 | µg/L | | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 190.09 | ND | 0.08 | 1 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 190.09 | 1 | 0.09 | 1 | µg/L | | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 190.09 | ND | 0.15 | 1 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 190.09 | ND | 0.09 | 1 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 190.09 | ND | 0.1 | 1 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | 2-HEXANONE | WG | 190.09 | ND | 0.83 | 5 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | ACETONE | WG | 190.09 | - | - | - | µg/L | R | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | BENZENE | WG | 190.09 | ND | 0.11 | 1 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 190.09 | ND | 0.1 | 1 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 190.09 | ND | 0.07 | 1 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | BROMOFORM | WG | 190.09 | ND | 0.19 | 1 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | BROMOMETHANE | WG | 190.09 | ND | 0.15 | 1 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 190.09 | ND | 0.08 | 1 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 190.09 | ND | 0.08 | 1 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | CHLOROBENZENE | WG | 190.09 | ND | 0.1 | 1 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | CHLOROETHANE | WG | 190.09 | ND | 0.08 | 1 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | CHLOROFORM | WG | 190.09 | 1.3 | 0.08 | 1 | µg/L | | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | CHLOROMETHANE | WG | 190.09 | ND | 0.1 | 1 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 190.09 | ND | 0.08 | 1 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 190.09 | ND | 0.07 | 1 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 190.09 | ND | 0.09 | 1 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | ETHYLBENZENE | WG | 190.09 | ND | 0.1 | 1 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 190.09 | - | - | - | µg/L | R | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 190.09 | ND | 0.72 | 5 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 190.09 | ND | 0.09 | 1 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 190.09 | ND | 0.08 | 2 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | STYRENE | WG | 190.09 | ND | 0.12 | 1 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 190.09 | ND | 0.11 | 1 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | TOLUENE | WG | 190.09 | ND | 0.09 | 1 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 190.09 | ND | 0.09 | 1 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 190.09 | ND | 0.08 | 1 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 190.09 | ND | 0.09 | 1 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 190.09 | ND | 0.08 | 1 | µg/L | U | MS-A048802 |
| 90MW0040 | 90MW0040- | 12/14/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 190.09 | ND | 0.11 | 1 | µg/L | U | MS-A048802 |
| 90MW0042 | 90MW0042- | 12/14/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 152.81 | ND | 0.0056 | 0.01 | µg/L | U | MS-A048803 |
| 90MW0042 | 90MW0042- | 12/14/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 152.81 | ND | 0.0048 | 0.01 | µg/L | U | MS-A048803 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 152.81 | ND | 0.09 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 152.81 | ND | 0.13 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 152.81 | ND | 0.11 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 152.81 | ND | 0.07 | 1 | µg/L | U | MS-A048804 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 152.81 | ND | 0.09 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 152.81 | ND | 0.14 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 152.81 | - | - | - | µg/L | R | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 152.81 | ND | 0.1 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 152.81 | ND | 0.08 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 152.81 | ND | 0.09 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 152.81 | ND | 0.15 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 152.81 | ND | 0.09 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 152.81 | ND | 0.1 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | 2-HEXANONE | WG | 152.81 | ND | 0.83 | 5 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | ACETONE | WG | 152.81 | - | - | - | µg/L | R | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | BENZENE | WG | 152.81 | ND | 0.11 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 152.81 | ND | 0.1 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 152.81 | ND | 0.07 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | BROMOFORM | WG | 152.81 | ND | 0.19 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | BROMOMETHANE | WG | 152.81 | ND | 0.15 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 152.81 | ND | 0.08 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 152.81 | ND | 0.08 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | CHLOROBENZENE | WG | 152.81 | ND | 0.1 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | CHLOROETHANE | WG | 152.81 | ND | 0.08 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | CHLOROFORM | WG | 152.81 | 1.4 | 0.08 | 1 | µg/L |  | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | CHLOROMETHANE | WG | 152.81 | ND | 0.1 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 152.81 | ND | 0.08 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 152.81 | ND | 0.07 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 152.81 | ND | 0.09 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | ETHYLBENZENE | WG | 152.81 | ND | 0.1 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 152.81 | - | - | - | µg/L | R | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 152.81 | ND | 0.72 | 5 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 152.81 | ND | 0.09 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 152.81 | ND | 0.54 | 5.3 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | STYRENE | WG | 152.81 | ND | 0.12 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 152.81 | ND | 0.11 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | TOLUENE | WG | 152.81 | ND | 0.09 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 152.81 | ND | 0.09 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 152.81 | ND | 0.08 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 152.81 | ND | 0.09 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 152.81 | ND | 0.08 | 1 | µg/L | U | MS-A048804 |
| 90MW0042 | 90MW0042- | 12/14/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 152.81 | ND | 0.11 | 1 | µg/L | U | MS-A048804 |
| 90MW0049 | 90MW0049- | 10/25/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 176.69 | 0.006 | 0.005 | 0.01 | µg/L | J | MS-A036102 |
| 90MW0049 | 90MW0049-FD | 10/25/2000 | E504 | FD1 | 1,2-DIBROMOETHANE (EDB) | WG | 176.69 | 0.006 | 0.005 | 0.01 | µg/L | J | MS-A036103 |
| 90MW0050 | 90MW0050- | 12/14/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 88.2 | ND | 0.0056 | 0.01 | µg/L | U | MS-A048805 |
| 90MW0050 | 90MW0050- | 12/14/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 88.2 | ND | 0.0048 | 0.01 | µg/L | U | MS-A048805 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 88.2 | ND | 0.09 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 88.2 | ND | 0.13 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 88.2 | ND | 0.11 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 88.2 | ND | 0.07 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 88.2 | ND | 0.09 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 88.2 | ND | 0.14 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 88.2 | - | - | - | µg/L | R | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 88.2 | ND | 0.1 | 1 | µg/L | U | MS-A048806 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 88.2 | ND | 0.08 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 88.2 | ND | 0.09 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 88.2 | ND | 0.15 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 88.2 | ND | 0.09 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 88.2 | ND | 0.1 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | 2-HEXANONE | WG | 88.2 | ND | 0.83 | 5 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | ACETONE | WG | 88.2 | - | - | - | µg/L | R | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | BENZENE | WG | 88.2 | ND | 0.11 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 88.2 | ND | 0.1 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 88.2 | ND | 0.07 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | BROMOFORM | WG | 88.2 | ND | 0.19 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | BROMOMETHANE | WG | 88.2 | ND | 0.15 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 88.2 | ND | 0.08 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 88.2 | ND | 0.08 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | CHLOROBENZENE | WG | 88.2 | ND | 0.1 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | CHLOROETHANE | WG | 88.2 | ND | 0.08 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | CHLOROFORM | WG | 88.2 | ND | 0.08 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | CHLOROMETHANE | WG | 88.2 | ND | 0.1 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 88.2 | ND | 0.08 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 88.2 | ND | 0.07 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 88.2 | ND | 0.09 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | ETHYLBENZENE | WG | 88.2 | ND | 0.1 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 88.2 | - | - | - | µg/L | R | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 88.2 | ND | 0.72 | 5 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 88.2 | ND | 0.09 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 88.2 | ND | 0.57 | 5.3 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | STYRENE | WG | 88.2 | ND | 0.12 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 88.2 | ND | 0.11 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | TOLUENE | WG | 88.2 | ND | 0.09 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 88.2 | ND | 0.09 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 88.2 | ND | 0.08 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 88.2 | ND | 0.09 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 88.2 | ND | 0.08 | 1 | µg/L | U | MS-A048806 |
| 90MW0050 | 90MW0050- | 12/14/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 88.2 | ND | 0.11 | 1 | µg/L | U | MS-A048806 |
| 90MW0053 | 90MW0053- | 12/18/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 191.67 | ND | 0.0056 | 0.01 | µg/L | U | MS-A050201 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | E504 | FD1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 191.67 | ND | 0.0056 | 0.01 | µg/L | U | MS-A050203 |
| 90MW0053 | 90MW0053- | 12/18/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 191.67 | 0.23 | 0.0048 | 0.01 | µg/L | | MS-A050201 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | E504 | FD1 | 1,2-DIBROMOETHANE (EDB) | WG | 191.67 | 0.23 | 0.0048 | 0.01 | µg/L | | MS-A050203 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 191.67 | ND | 0.09 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | 1,1,1-TRICHLOROETHANE | WG | 191.67 | ND | 0.09 | 1 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 191.67 | ND | 0.13 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | 1,1,2,2-TETRACHLOROETHANE | WG | 191.67 | ND | 0.13 | 1 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 191.67 | ND | 0.11 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | 1,1,2-TRICHLOROETHANE | WG | 191.67 | ND | 0.11 | 1 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 191.67 | ND | 0.07 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | 1,1-DICHLOROETHANE | WG | 191.67 | ND | 0.07 | 1 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 191.67 | ND | 0.09 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | 1,1-DICHLOROETHENE | WG | 191.67 | ND | 0.09 | 1 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 191.67 | ND | 0.14 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | 1,2,4-TRICHLOROBENZENE | WG | 191.67 | ND | 0.14 | 1 | µg/L | U | MS-A050204 |

## Appendix D
## Analytical Laboratory Results
## October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 191.67 | - | - | - | µg/L | R | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 191.67 | - | - | - | µg/L | R | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 191.67 | 0.19 | 0.1 | 1 | µg/L | J | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | 1,2-DIBROMOETHANE (EDB) | WG | 191.67 | 0.18 | 0.1 | 1 | µg/L | J | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 191.67 | ND | 0.08 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | 1,2-DICHLOROBENZENE | WG | 191.67 | ND | 0.08 | 1 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 191.67 | ND | 0.09 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | 1,2-DICHLOROETHANE | WG | 191.67 | ND | 0.09 | 1 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 191.67 | ND | 0.15 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | 1,2-DICHLOROPROPANE | WG | 191.67 | ND | 0.15 | 1 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 191.67 | ND | 0.09 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | 1,3-DICHLOROBENZENE | WG | 191.67 | ND | 0.09 | 1 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 191.67 | ND | 0.1 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | 1,4-DICHLOROBENZENE | WG | 191.67 | ND | 0.1 | 1 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | 2-HEXANONE | WG | 191.67 | ND | 0.83 | 5 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | 2-HEXANONE | WG | 191.67 | ND | 0.83 | 5 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | ACETONE | WG | 191.67 | - | - | - | µg/L | R | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | ACETONE | WG | 191.67 | - | - | - | µg/L | R | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | BENZENE | WG | 191.67 | ND | 0.11 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | BENZENE | WG | 191.67 | ND | 0.11 | 1 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 191.67 | ND | 0.1 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | BROMOCHLOROMETHANE | WG | 191.67 | ND | 0.1 | 1 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 191.67 | ND | 0.07 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | BROMODICHLOROMETHANE | WG | 191.67 | ND | 0.07 | 1 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | BROMOFORM | WG | 191.67 | ND | 0.19 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | BROMOFORM | WG | 191.67 | ND | 0.19 | 1 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | BROMOMETHANE | WG | 191.67 | ND | 0.15 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | BROMOMETHANE | WG | 191.67 | ND | 0.15 | 1 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 191.67 | ND | 0.08 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | CARBON DISULFIDE | WG | 191.67 | ND | 0.08 | 1 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 191.67 | ND | 0.08 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | CARBON TETRACHLORIDE | WG | 191.67 | ND | 0.08 | 1 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | CHLOROBENZENE | WG | 191.67 | ND | 0.1 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | CHLOROBENZENE | WG | 191.67 | ND | 0.1 | 1 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | CHLOROETHANE | WG | 191.67 | ND | 0.08 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | CHLOROETHANE | WG | 191.67 | ND | 0.08 | 1 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | CHLOROFORM | WG | 191.67 | 0.62 | 0.08 | 1 | µg/L | J | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | CHLOROFORM | WG | 191.67 | 0.61 | 0.08 | 1 | µg/L | J | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | CHLOROMETHANE | WG | 191.67 | ND | 0.1 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | CHLOROMETHANE | WG | 191.67 | ND | 0.1 | 1 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 191.67 | ND | 0.08 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | CIS-1,2-DICHLOROETHENE | WG | 191.67 | ND | 0.08 | 1 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | CIS-1,3-DICHLOROPROPENE | WG | 191.67 | ND | 0.07 | 1 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 191.67 | ND | 0.07 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 191.67 | ND | 0.09 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | DIBROMOCHLOROMETHANE | WG | 191.67 | ND | 0.09 | 1 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | ETHYLBENZENE | WG | 191.67 | ND | 0.1 | 1 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | ETHYLBENZENE | WG | 191.67 | ND | 0.1 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 191.67 | - | - | - | µg/L | R | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 191.67 | - | - | - | µg/L | R | MS-A050204 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 191.67 | ND | 0.72 | 5 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 191.67 | ND | 0.72 | 5 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 191.67 | ND | 0.09 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 191.67 | ND | 0.09 | 1 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 191.67 | ND | 0.83 | 5.7 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | METHYLENE CHLORIDE | WG | 191.67 | ND | 0.76 | 5.7 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | STYRENE | WG | 191.67 | ND | 0.12 | 1 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | STYRENE | WG | 191.67 | ND | 0.12 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 191.67 | ND | 0.11 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | TETRACHLOROETHENE(PCE) | WG | 191.67 | ND | 0.11 | 1 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | TOLUENE | WG | 191.67 | ND | 0.09 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | TOLUENE | WG | 191.67 | ND | 0.09 | 1 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 191.67 | ND | 0.09 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | TRANS-1,2-DICHLOROETHENE | WG | 191.67 | ND | 0.09 | 1 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | TRANS-1,3-DICHLOROPROPENE | WG | 191.67 | ND | 0.08 | 1 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 191.67 | ND | 0.08 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 191.67 | ND | 0.09 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | TRICHLOROETHENE(TCE) | WG | 191.67 | ND | 0.09 | 1 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 191.67 | ND | 0.08 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | VINYL CHLORIDE | WG | 191.67 | ND | 0.08 | 1 | µg/L | U | MS-A050204 |
| 90MW0053 | 90MW0053- | 12/18/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 191.67 | ND | 0.11 | 1 | µg/L | U | MS-A050202 |
| 90MW0053 | 90MW0053-FD | 12/18/2000 | CVOL | FD1 | XYLENES, TOTAL | WG | 191.67 | ND | 0.11 | 1 | µg/L | U | MS-A050204 |
| 90MW0055 | 90MW0055- | 12/14/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 221.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A049005 |
| 90MW0055 | 90MW0055- | 12/14/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 221.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A049005 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 221.5 | ND | 0.09 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 221.5 | ND | 0.13 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 221.5 | ND | 0.11 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 221.5 | ND | 0.07 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 221.5 | ND | 0.09 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 221.5 | ND | 0.14 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 221.5 | - | - | - | µg/L | R | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 221.5 | ND | 0.1 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 221.5 | ND | 0.08 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 221.5 | ND | 0.09 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 221.5 | ND | 0.15 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 221.5 | ND | 0.09 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 221.5 | ND | 0.1 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | 2-HEXANONE | WG | 221.5 | ND | 0.83 | 5 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | ACETONE | WG | 221.5 | - | - | - | µg/L | R | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | BENZENE | WG | 221.5 | ND | 0.11 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 221.5 | ND | 0.1 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 221.5 | ND | 0.07 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | BROMOFORM | WG | 221.5 | ND | 0.19 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | BROMOMETHANE | WG | 221.5 | ND | 0.15 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 221.5 | ND | 0.08 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 221.5 | ND | 0.08 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | CHLOROBENZENE | WG | 221.5 | ND | 0.1 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | CHLOROETHANE | WG | 221.5 | ND | 0.08 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | CHLOROFORM | WG | 221.5 | ND | 0.08 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | CHLOROMETHANE | WG | 221.5 | ND | 0.1 | 1 | µg/L | U | MS-A049006 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 221.5 | ND | 0.08 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 221.5 | ND | 0.07 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 221.5 | ND | 0.09 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | ETHYLBENZENE | WG | 221.5 | ND | 0.1 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 221.5 | - | - | - | µg/L | R | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 221.5 | ND | 0.72 | 5 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 221.5 | ND | 0.09 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 221.5 | ND | 0.5 | 5.3 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | STYRENE | WG | 221.5 | ND | 0.12 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 221.5 | ND | 0.11 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | TOLUENE | WG | 221.5 | ND | 0.09 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 221.5 | ND | 0.09 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 221.5 | ND | 0.08 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 221.5 | ND | 0.09 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 221.5 | ND | 0.08 | 1 | µg/L | U | MS-A049006 |
| 90MW0055 | 90MW0055- | 12/14/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 221.5 | ND | 0.11 | 1 | µg/L | U | MS-A049006 |
| 90MW0056 | 90MW0056- | 12/14/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 215.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A049007 |
| 90MW0056 | 90MW0056- | 12/14/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 215.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A049007 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 215.5 | ND | 0.09 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 215.5 | ND | 0.13 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 215.5 | ND | 0.11 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 215.5 | ND | 0.07 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 215.5 | ND | 0.09 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 215.5 | ND | 0.14 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 215.5 | - | - | - | µg/L | R | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 215.5 | ND | 0.1 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 215.5 | ND | 0.08 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 215.5 | ND | 0.09 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 215.5 | ND | 0.15 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 215.5 | ND | 0.09 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 215.5 | ND | 0.1 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | 2-HEXANONE | WG | 215.5 | ND | 0.83 | 5 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | ACETONE | WG | 215.5 | - | - | - | µg/L | R | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | BENZENE | WG | 215.5 | ND | 0.11 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 215.5 | ND | 0.1 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 215.5 | ND | 0.07 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | BROMOFORM | WG | 215.5 | ND | 0.19 | 1 | µg/L | UJ | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | BROMOMETHANE | WG | 215.5 | ND | 0.15 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 215.5 | ND | 0.08 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 215.5 | ND | 0.08 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | CHLOROBENZENE | WG | 215.5 | ND | 0.1 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | CHLOROETHANE | WG | 215.5 | ND | 0.08 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | CHLOROFORM | WG | 215.5 | ND | 0.08 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | CHLOROMETHANE | WG | 215.5 | ND | 0.1 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 215.5 | ND | 0.08 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 215.5 | ND | 0.07 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 215.5 | ND | 0.09 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | ETHYLBENZENE | WG | 215.5 | ND | 0.1 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 215.5 | - | - | - | µg/L | R | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 215.5 | ND | 0.72 | 5 | µg/L | U | MS-A049008 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 215.5 | ND | 0.09 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 215.5 | ND | 0.63 | 5.3 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | STYRENE | WG | 215.5 | ND | 0.12 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 215.5 | ND | 0.11 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | TOLUENE | WG | 215.5 | ND | 0.09 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 215.5 | ND | 0.09 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 215.5 | ND | 0.08 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 215.5 | ND | 0.09 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 215.5 | ND | 0.08 | 1 | µg/L | U | MS-A049008 |
| 90MW0056 | 90MW0056- | 12/14/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 215.5 | ND | 0.11 | 1 | µg/L | U | MS-A049008 |
| 90MW0058 | 90MW0058- | 11/10/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 150.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A043301 |
| 90MW0058 | 90MW0058-FD | 11/10/2000 | E504 | FD1 | 1,2-DIBROMOETHANE (EDB) | WG | 150.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A043302 |
| 90MW0064 | 90MW0064- | 12/11/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 207.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A045901 |
| 90MW0064 | 90MW0064- | 12/11/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 207.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A045901 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 207.5 | ND | 0.09 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 207.5 | ND | 0.13 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 207.5 | ND | 0.11 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 207.5 | ND | 0.07 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 207.5 | ND | 0.09 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 207.5 | ND | 0.14 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 207.5 | - | - | - | µg/L | R | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 207.5 | ND | 0.1 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 207.5 | ND | 0.08 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 207.5 | ND | 0.09 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 207.5 | ND | 0.15 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 207.5 | ND | 0.09 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 207.5 | ND | 0.1 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | 2-HEXANONE | WG | 207.5 | ND | 0.83 | 5 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | ACETONE | WG | 207.5 | - | - | - | µg/L | R | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | BENZENE | WG | 207.5 | ND | 0.11 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 207.5 | ND | 0.1 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 207.5 | ND | 0.07 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | BROMOFORM | WG | 207.5 | ND | 0.19 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | BROMOMETHANE | WG | 207.5 | ND | 0.15 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 207.5 | ND | 0.08 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 207.5 | ND | 0.08 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | CHLOROBENZENE | WG | 207.5 | ND | 0.1 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | CHLOROETHANE | WG | 207.5 | ND | 0.08 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | CHLOROFORM | WG | 207.5 | 0.6 | 0.08 | 1 | µg/L | J | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | CHLOROMETHANE | WG | 207.5 | ND | 0.1 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 207.5 | ND | 0.08 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 207.5 | ND | 0.07 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 207.5 | ND | 0.09 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | ETHYLBENZENE | WG | 207.5 | ND | 0.1 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 207.5 | - | - | - | µg/L | R | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 207.5 | ND | 0.72 | 5 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 207.5 | ND | 0.09 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 207.5 | ND | 0.55 | 5.1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | STYRENE | WG | 207.5 | ND | 0.12 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 207.5 | ND | 0.11 | 1 | µg/L | U | MS-A045902 |

## Appendix D
## Analytical Laboratory Results
## October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | TOLUENE | WG | 207.5 | ND | 0.09 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 207.5 | ND | 0.09 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 207.5 | ND | 0.08 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 207.5 | ND | 0.09 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 207.5 | ND | 0.08 | 1 | µg/L | U | MS-A045902 |
| 90MW0064 | 90MW0064- | 12/11/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 207.5 | ND | 0.11 | 1 | µg/L | U | MS-A045902 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 107.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A045903 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 107.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A045903 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 107.5 | ND | 0.09 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 107.5 | ND | 0.13 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 107.5 | ND | 0.11 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 107.5 | ND | 0.07 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 107.5 | ND | 0.09 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 107.5 | ND | 0.14 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 107.5 | - | - | - | µg/L | R | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 107.5 | ND | 0.1 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 107.5 | ND | 0.08 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 107.5 | ND | 0.09 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 107.5 | ND | 0.15 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 107.5 | ND | 0.09 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 107.5 | ND | 0.1 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | 2-HEXANONE | WG | 107.5 | ND | 0.83 | 5 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | ACETONE | WG | 107.5 | - | - | - | µg/L | R | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | BENZENE | WG | 107.5 | ND | 0.11 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 107.5 | ND | 0.1 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 107.5 | ND | 0.07 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | BROMOFORM | WG | 107.5 | ND | 0.19 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | BROMOMETHANE | WG | 107.5 | ND | 0.15 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 107.5 | ND | 0.08 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 107.5 | ND | 0.08 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | CHLOROBENZENE | WG | 107.5 | ND | 0.1 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | CHLOROETHANE | WG | 107.5 | ND | 0.08 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | CHLOROFORM | WG | 107.5 | ND | 0.08 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | CHLOROMETHANE | WG | 107.5 | ND | 0.1 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 107.5 | ND | 0.08 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 107.5 | ND | 0.07 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 107.5 | ND | 0.09 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | ETHYLBENZENE | WG | 107.5 | ND | 0.1 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 107.5 | - | - | - | µg/L | R | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 107.5 | ND | 0.72 | 5 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 107.5 | ND | 0.09 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 107.5 | ND | 0.08 | 2 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | STYRENE | WG | 107.5 | ND | 0.12 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 107.5 | ND | 0.11 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | TOLUENE | WG | 107.5 | ND | 0.09 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 107.5 | ND | 0.09 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 107.5 | ND | 0.08 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 107.5 | ND | 0.09 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 107.5 | ND | 0.08 | 1 | µg/L | U | MS-A045904 |
| 90MW0064A | 90MW0064A- | 12/11/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 107.5 | ND | 0.11 | 1 | µg/L | U | MS-A045904 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0066 | 90MW0066- | 12/12/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 191 | ND | 0.0056 | 0.01 | µg/L | U | MS-A047101 |
| 90MW0066 | 90MW0066- | 12/12/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 191 | ND | 0.0048 | 0.01 | µg/L | U | MS-A047101 |
| 90MW0066 | 90MW0066- | 12/12/2000 | E160.2 | N1 | SUSPENDED SOLIDS (RESIDUE, NON-FILT | WG | 191 | ND | 4 | 4 | MG/L | U | MS-A047103 |
| 90MW0066 | 90MW0066- | 12/12/2000 | C200.7 | N1 | ALUMINUM (TOTAL) | WG | 191 | ND | 82.8 | 323 | µg/L | U | MS-A047301 |
| 90MW0066 | 90MW0066- | 12/12/2000 | C200.7 | N1 | ANTIMONY (TOTAL) | WG | 191 | ND | 5.7 | 6 | µg/L | U | MS-A047301 |
| 90MW0066 | 90MW0066- | 12/12/2000 | C200.7 | N1 | ARSENIC (TOTAL) | WG | 191 | 6 | 4.3 | 10 | µg/L | J | MS-A047301 |
| 90MW0066 | 90MW0066- | 12/12/2000 | C200.7 | N1 | BARIUM (TOTAL) | WG | 191 | 2.1 | 0.2 | 200 | µg/L | J | MS-A047301 |
| 90MW0066 | 90MW0066- | 12/12/2000 | C200.7 | N1 | BERYLLIUM (TOTAL) | WG | 191 | ND | 0.6 | 4 | µg/L | U | MS-A047301 |
| 90MW0066 | 90MW0066- | 12/12/2000 | C200.7 | N1 | CADMIUM (TOTAL) | WG | 191 | ND | 0.5 | 5 | µg/L | UJ | MS-A047301 |
| 90MW0066 | 90MW0066- | 12/12/2000 | C200.7 | N1 | CALCIUM (TOTAL) | WG | 191 | 5720 | 47.4 | 5000 | µg/L | | MS-A047301 |
| 90MW0066 | 90MW0066- | 12/12/2000 | C200.7 | N1 | CHROMIUM (TOTAL) | WG | 191 | ND | 0.8 | 10 | µg/L | UJ | MS-A047301 |
| 90MW0066 | 90MW0066- | 12/12/2000 | C200.7 | N1 | COBALT (TOTAL) | WG | 191 | 1.7 | 1.1 | 50 | µg/L | J | MS-A047301 |
| 90MW0066 | 90MW0066- | 12/12/2000 | C200.7 | N1 | COPPER (TOTAL) | WG | 191 | 5.6 | 1.6 | 25 | µg/L | J | MS-A047301 |
| 90MW0066 | 90MW0066- | 12/12/2000 | C200.7 | N1 | IRON (TOTAL) | WG | 191 | 1940 | 35.1 | 100 | µg/L | | MS-A047301 |
| 90MW0066 | 90MW0066- | 12/12/2000 | C200.7 | N1 | LEAD (TOTAL) | WG | 191 | ND | 2.4 | 3 | µg/L | U | MS-A047301 |
| 90MW0066 | 90MW0066- | 12/12/2000 | C200.7 | N1 | MAGNESIUM (TOTAL) | WG | 191 | 2260 | 59.4 | 5000 | µg/L | J | MS-A047301 |
| 90MW0066 | 90MW0066- | 12/12/2000 | C200.7 | N1 | MANGANESE (TOTAL) | WG | 191 | 179 | 1 | 15 | µg/L | | MS-A047301 |
| 90MW0066 | 90MW0066- | 12/12/2000 | C200.7 | N1 | NICKEL (TOTAL) | WG | 191 | 2.3 | 1.1 | 40 | µg/L | J | MS-A047301 |
| 90MW0066 | 90MW0066- | 12/12/2000 | C200.7 | N1 | POTASSIUM (TOTAL) | WG | 191 | 1360 | 21 | 5000 | µg/L | J | MS-A047301 |
| 90MW0066 | 90MW0066- | 12/12/2000 | C200.7 | N1 | SILVER (TOTAL) | WG | 191 | ND | 0.6 | 10 | µg/L | UJ | MS-A047301 |
| 90MW0066 | 90MW0066- | 12/12/2000 | C200.7 | N1 | SODIUM (TOTAL) | WG | 191 | 9350 | 385 | 5000 | µg/L | | MS-A047301 |
| 90MW0066 | 90MW0066- | 12/12/2000 | C200.7 | N1 | VANADIUM (TOTAL) | WG | 191 | ND | 1.1 | 50 | µg/L | U | MS-A047301 |
| 90MW0066 | 90MW0066- | 12/12/2000 | C200.7 | N1 | ZINC (TOTAL) | WG | 191 | ND | 10.2 | 20 | µg/L | U | MS-A047301 |
| 90MW0066 | 90MW0066- | 12/12/2000 | C245.1 | N1 | MERCURY (TOTAL) | WG | 191 | ND | 0.1 | 0.2 | µg/L | U | MS-A047301 |
| 90MW0066 | 90MW0066- | 12/12/2000 | C270.2 | N1 | SELENIUM (TOTAL) | WG | 191 | ND | 1.5 | 5 | µg/L | UJ | MS-A047301 |
| 90MW0066 | 90MW0066- | 12/12/2000 | C279.2 | N1 | THALLIUM (TOTAL) | WG | 191 | ND | 1.4 | 2 | µg/L | U | MS-A047301 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 191 | ND | 0.09 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 191 | ND | 0.13 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 191 | ND | 0.11 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 191 | ND | 0.07 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 191 | ND | 0.09 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 191 | ND | 0.14 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 191 | - | - | - | µg/L | R | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 191 | ND | 0.1 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 191 | ND | 0.08 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 191 | ND | 0.09 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 191 | ND | 0.15 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 191 | ND | 0.09 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 191 | ND | 0.1 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | 2-HEXANONE | WG | 191 | ND | 0.83 | 5 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | ACETONE | WG | 191 | - | - | - | µg/L | R | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | BENZENE | WG | 191 | ND | 0.11 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 191 | ND | 0.1 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 191 | ND | 0.07 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | BROMOFORM | WG | 191 | ND | 0.19 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | BROMOMETHANE | WG | 191 | ND | 0.15 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 191 | ND | 0.08 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 191 | ND | 0.08 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | CHLOROBENZENE | WG | 191 | ND | 0.1 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | CHLOROETHANE | WG | 191 | ND | 0.08 | 1 | µg/L | U | MS-A047102 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | CHLOROFORM | WG | 191 | ND | 0.08 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | CHLOROMETHANE | WG | 191 | ND | 0.1 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 191 | ND | 0.08 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 191 | ND | 0.07 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 191 | ND | 0.09 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | ETHYLBENZENE | WG | 191 | ND | 0.1 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 191 | - | - | - | µg/L | R | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 191 | ND | 0.72 | 5 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 191 | ND | 0.09 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 191 | ND | 0.68 | 5.3 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | STYRENE | WG | 191 | ND | 0.12 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 191 | ND | 0.11 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | TOLUENE | WG | 191 | ND | 0.09 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 191 | ND | 0.09 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 191 | ND | 0.08 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 191 | ND | 0.09 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 191 | ND | 0.08 | 1 | µg/L | U | MS-A047102 |
| 90MW0066 | 90MW0066- | 12/12/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 191 | ND | 0.11 | 1 | µg/L | U | MS-A047102 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 142 | ND | 0.0056 | 0.01 | µg/L | U | MS-A047104 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 142 | ND | 0.0048 | 0.01 | µg/L | U | MS-A047104 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | E160.2 | N1 | SUSPENDED SOLIDS (RESIDUE, NON-FILT | WG | 142 | ND | 4 | 4 | MG/L | U | MS-A047106 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | C200.7 | N1 | ALUMINUM (TOTAL) | WG | 142 | ND | 54.7 | 200 | µg/L | U | MS-A047302 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | C200.7 | N1 | ANTIMONY (TOTAL) | WG | 142 | ND | 5.7 | 6 | µg/L | U | MS-A047302 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | C200.7 | N1 | ARSENIC (TOTAL) | WG | 142 | ND | 4.3 | 10 | µg/L | U | MS-A047302 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | C200.7 | N1 | BARIUM (TOTAL) | WG | 142 | 2.7 | 0.2 | 200 | µg/L | J | MS-A047302 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | C200.7 | N1 | BERYLLIUM (TOTAL) | WG | 142 | ND | 0.6 | 4 | µg/L | U | MS-A047302 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | C200.7 | N1 | CADMIUM (TOTAL) | WG | 142 | ND | 0.5 | 5 | µg/L | UJ | MS-A047302 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | C200.7 | N1 | CALCIUM (TOTAL) | WG | 142 | 2270 | 47.4 | 5000 | µg/L | J | MS-A047302 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | C200.7 | N1 | CHROMIUM (TOTAL) | WG | 142 | ND | 2 | 10 | µg/L | UJ | MS-A047302 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | C200.7 | N1 | COBALT (TOTAL) | WG | 142 | ND | 1.1 | 50 | µg/L | UJ | MS-A047302 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | C200.7 | N1 | COPPER (TOTAL) | WG | 142 | ND | 1.6 | 25 | µg/L | UJ | MS-A047302 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | C200.7 | N1 | IRON (TOTAL) | WG | 142 | 106 | 35.1 | 100 | µg/L | | MS-A047302 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | C200.7 | N1 | LEAD (TOTAL) | WG | 142 | ND | 2.4 | 3 | µg/L | U | MS-A047302 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | C200.7 | N1 | MAGNESIUM (TOTAL) | WG | 142 | 1490 | 59.4 | 5000 | µg/L | J | MS-A047302 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | C200.7 | N1 | MANGANESE (TOTAL) | WG | 142 | ND | 1.9 | 15 | µg/L | U | MS-A047302 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | C200.7 | N1 | NICKEL (TOTAL) | WG | 142 | 2.1 | 1.1 | 40 | µg/L | J | MS-A047302 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | C200.7 | N1 | POTASSIUM (TOTAL) | WG | 142 | 681 | 21 | 5000 | µg/L | J | MS-A047302 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | C200.7 | N1 | SILVER (TOTAL) | WG | 142 | ND | 0.6 | 10 | µg/L | UJ | MS-A047302 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | C200.7 | N1 | SODIUM (TOTAL) | WG | 142 | 10600 | 385 | 5000 | µg/L | | MS-A047302 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | C200.7 | N1 | VANADIUM (TOTAL) | WG | 142 | ND | 2.1 | 50 | µg/L | U | MS-A047302 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | C200.7 | N1 | ZINC (TOTAL) | WG | 142 | ND | 4.1 | 20 | µg/L | U | MS-A047302 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | C245.1 | N1 | MERCURY (TOTAL) | WG | 142 | ND | 0.1 | 0.2 | µg/L | U | MS-A047302 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | C270.2 | N1 | SELENIUM (TOTAL) | WG | 142 | ND | 1.5 | 5 | µg/L | U | MS-A047302 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | C279.2 | N1 | THALLIUM (TOTAL) | WG | 142 | ND | 1.4 | 2 | µg/L | U | MS-A047302 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 142 | ND | 0.09 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 142 | ND | 0.13 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 142 | ND | 0.11 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 142 | ND | 0.07 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 142 | ND | 0.09 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 142 | ND | 0.14 | 1 | µg/L | U | MS-A047105 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 142 | - | - | - | µg/L | R | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 142 | ND | 0.1 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 142 | ND | 0.08 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 142 | ND | 0.09 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 142 | ND | 0.15 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 142 | ND | 0.09 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 142 | ND | 0.1 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | 2-HEXANONE | WG | 142 | ND | 0.83 | 5 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | ACETONE | WG | 142 | - | - | - | µg/L | R | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | BENZENE | WG | 142 | ND | 0.11 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 142 | ND | 0.1 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 142 | ND | 0.07 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | BROMOFORM | WG | 142 | ND | 0.19 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | BROMOMETHANE | WG | 142 | ND | 0.15 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 142 | ND | 0.08 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 142 | ND | 0.08 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | CHLOROBENZENE | WG | 142 | ND | 0.1 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | CHLOROETHANE | WG | 142 | ND | 0.08 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | CHLOROFORM | WG | 142 | ND | 0.08 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | CHLOROMETHANE | WG | 142 | ND | 0.1 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 142 | ND | 0.08 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 142 | ND | 0.07 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 142 | ND | 0.09 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | ETHYLBENZENE | WG | 142 | ND | 0.1 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 142 | - | - | - | µg/L | R | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 142 | ND | 0.72 | 5 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 142 | ND | 0.09 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 142 | ND | 1 | 5.3 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | STYRENE | WG | 142 | ND | 0.12 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 142 | ND | 0.11 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | TOLUENE | WG | 142 | ND | 0.09 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 142 | ND | 0.09 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 142 | ND | 0.08 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 142 | ND | 0.09 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 142 | ND | 0.08 | 1 | µg/L | U | MS-A047105 |
| 90MW0066A | 90MW0066A- | 12/12/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 142 | ND | 0.11 | 1 | µg/L | U | MS-A047105 |
| 90MW0068 | 90MW0068- | 12/12/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 137.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A047203 |
| 90MW0068 | 90MW0068- | 12/12/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 137.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A047203 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 137.5 | ND | 0.09 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 137.5 | ND | 0.13 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 137.5 | ND | 0.11 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 137.5 | ND | 0.07 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 137.5 | ND | 0.09 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 137.5 | ND | 0.14 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 137.5 | - | - | - | µg/L | R | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 137.5 | ND | 0.1 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 137.5 | ND | 0.08 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 137.5 | ND | 0.09 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 137.5 | ND | 0.15 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 137.5 | ND | 0.09 | 1 | µg/L | U | MS-A047204 |

## Appendix D
## Analytical Laboratory Results
## October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 137.5 | ND | 0.1 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | 2-HEXANONE | WG | 137.5 | ND | 0.83 | 5 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | ACETONE | WG | 137.5 | - | - | - | µg/L | R | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | BENZENE | WG | 137.5 | ND | 0.11 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 137.5 | ND | 0.1 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 137.5 | ND | 0.07 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | BROMOFORM | WG | 137.5 | ND | 0.19 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | BROMOMETHANE | WG | 137.5 | ND | 0.15 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 137.5 | ND | 0.08 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 137.5 | ND | 0.08 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | CHLOROBENZENE | WG | 137.5 | ND | 0.1 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | CHLOROETHANE | WG | 137.5 | ND | 0.08 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | CHLOROFORM | WG | 137.5 | ND | 0.08 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | CHLOROMETHANE | WG | 137.5 | ND | 0.1 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 137.5 | ND | 0.08 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 137.5 | ND | 0.07 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 137.5 | ND | 0.09 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | ETHYLBENZENE | WG | 137.5 | ND | 0.1 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 137.5 | - | - | - | µg/L | R | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 137.5 | ND | 0.72 | 5 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 137.5 | ND | 0.09 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 137.5 | ND | 0.66 | 5.3 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | STYRENE | WG | 137.5 | ND | 0.12 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 137.5 | ND | 0.11 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | TOLUENE | WG | 137.5 | ND | 0.09 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 137.5 | ND | 0.09 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 137.5 | ND | 0.08 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 137.5 | ND | 0.09 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 137.5 | ND | 0.08 | 1 | µg/L | U | MS-A047204 |
| 90MW0068 | 90MW0068- | 12/12/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 137.5 | ND | 0.11 | 1 | µg/L | U | MS-A047204 |
| 90MW0070 | 90MW0070- | 12/12/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 135 | ND | 0.0056 | 0.01 | µg/L | U | MS-A047401 |
| 90MW0070 | 90MW0070- | 12/12/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 135 | ND | 0.0048 | 0.01 | µg/L | U | MS-A047401 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 135 | ND | 0.09 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 135 | ND | 0.13 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 135 | ND | 0.11 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 135 | ND | 0.07 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 135 | ND | 0.09 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 135 | ND | 0.14 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 135 | - | - | - | µg/L | R | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 135 | ND | 0.1 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 135 | ND | 0.08 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 135 | ND | 0.09 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 135 | ND | 0.15 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 135 | ND | 0.09 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 135 | ND | 0.1 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | 2-HEXANONE | WG | 135 | ND | 0.83 | 5 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | ACETONE | WG | 135 | - | - | - | µg/L | R | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | BENZENE | WG | 135 | ND | 0.11 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 135 | ND | 0.1 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 135 | ND | 0.07 | 1 | µg/L | U | MS-A047402 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | BROMOFORM | WG | 135 | ND | 0.19 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | BROMOMETHANE | WG | 135 | ND | 0.15 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 135 | ND | 0.08 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 135 | ND | 0.08 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | CHLOROBENZENE | WG | 135 | ND | 0.1 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | CHLOROETHANE | WG | 135 | ND | 0.08 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | CHLOROFORM | WG | 135 | 1.3 | 0.08 | 1 | µg/L |  | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | CHLOROMETHANE | WG | 135 | ND | 0.1 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 135 | ND | 0.08 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 135 | ND | 0.07 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 135 | ND | 0.09 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | ETHYLBENZENE | WG | 135 | ND | 0.1 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 135 | - | - | - | µg/L | R | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 135 | ND | 0.72 | 5 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 135 | ND | 0.09 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 135 | ND | 0.6 | 5.3 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | STYRENE | WG | 135 | ND | 0.12 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 135 | ND | 0.11 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | TOLUENE | WG | 135 | ND | 0.09 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 135 | ND | 0.09 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 135 | ND | 0.08 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 135 | ND | 0.09 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 135 | ND | 0.08 | 1 | µg/L | U | MS-A047402 |
| 90MW0070 | 90MW0070- | 12/12/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 135 | ND | 0.11 | 1 | µg/L | U | MS-A047402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 157.8 | ND | 0.0056 | 0.01 | µg/L | U | MS-A048401 |
| 90MW0076 | 90MW0076- | 12/13/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 157.8 | ND | 0.0048 | 0.01 | µg/L | U | MS-A048401 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 157.8 | ND | 0.09 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 157.8 | ND | 0.13 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 157.8 | ND | 0.11 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 157.8 | ND | 0.07 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 157.8 | ND | 0.09 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 157.8 | ND | 0.14 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 157.8 | - | - | - | µg/L | R | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 157.8 | ND | 0.1 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 157.8 | ND | 0.08 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 157.8 | ND | 0.09 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 157.8 | ND | 0.15 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 157.8 | ND | 0.09 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 157.8 | ND | 0.1 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | 2-HEXANONE | WG | 157.8 | ND | 0.83 | 5 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | ACETONE | WG | 157.8 | - | - | - | µg/L | R | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | BENZENE | WG | 157.8 | ND | 0.11 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 157.8 | ND | 0.1 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 157.8 | ND | 0.07 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | BROMOFORM | WG | 157.8 | ND | 0.19 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | BROMOMETHANE | WG | 157.8 | ND | 0.15 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 157.8 | ND | 0.08 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 157.8 | ND | 0.08 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | CHLOROBENZENE | WG | 157.8 | ND | 0.1 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | CHLOROETHANE | WG | 157.8 | ND | 0.08 | 1 | µg/L | U | MS-A048402 |

## Appendix D
## Analytical Laboratory Results
## October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | CHLOROFORM | WG | 157.8 | 0.98 | 0.08 | 1 | µg/L | J | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | CHLOROMETHANE | WG | 157.8 | ND | 0.1 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 157.8 | ND | 0.08 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 157.8 | ND | 0.07 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 157.8 | ND | 0.09 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | ETHYLBENZENE | WG | 157.8 | ND | 0.1 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 157.8 | - | - | - | µg/L | R | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 157.8 | ND | 0.72 | 5 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 157.8 | ND | 0.09 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 157.8 | ND | 0.82 | 7.4 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | STYRENE | WG | 157.8 | ND | 0.12 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 157.8 | ND | 0.11 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | TOLUENE | WG | 157.8 | ND | 0.09 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 157.8 | ND | 0.09 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 157.8 | ND | 0.08 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 157.8 | ND | 0.09 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 157.8 | ND | 0.08 | 1 | µg/L | U | MS-A048402 |
| 90MW0076 | 90MW0076- | 12/13/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 157.8 | ND | 0.11 | 1 | µg/L | U | MS-A048402 |
| 90MW0077 | 90MW0077- | 12/13/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 150.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A048405 |
| 90MW0077 | 90MW0077- | 12/13/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 150.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A048405 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 150.5 | ND | 0.09 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 150.5 | ND | 0.13 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 150.5 | ND | 0.11 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 150.5 | ND | 0.07 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 150.5 | ND | 0.09 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 150.5 | ND | 0.14 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 150.5 | - | - | - | µg/L | R | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 150.5 | ND | 0.1 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 150.5 | ND | 0.08 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 150.5 | ND | 0.09 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 150.5 | ND | 0.15 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 150.5 | ND | 0.09 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 150.5 | ND | 0.1 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | 2-HEXANONE | WG | 150.5 | ND | 0.83 | 5 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | ACETONE | WG | 150.5 | - | - | - | µg/L | R | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | BENZENE | WG | 150.5 | ND | 0.11 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 150.5 | ND | 0.1 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 150.5 | ND | 0.07 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | BROMOFORM | WG | 150.5 | ND | 0.19 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | BROMOMETHANE | WG | 150.5 | ND | 0.15 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 150.5 | ND | 0.08 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 150.5 | ND | 0.08 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | CHLOROBENZENE | WG | 150.5 | ND | 0.1 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | CHLOROETHANE | WG | 150.5 | ND | 0.08 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | CHLOROFORM | WG | 150.5 | ND | 0.08 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | CHLOROMETHANE | WG | 150.5 | ND | 0.1 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 150.5 | ND | 0.08 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 150.5 | ND | 0.07 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 150.5 | ND | 0.09 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | ETHYLBENZENE | WG | 150.5 | ND | 0.1 | 1 | µg/L | U | MS-A048406 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 150.5 | - | - | - | µg/L | R | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 150.5 | ND | 0.72 | 5 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 150.5 | ND | 0.09 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 150.5 | ND | 0.77 | 10 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | STYRENE | WG | 150.5 | ND | 0.12 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 150.5 | ND | 0.11 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | TOLUENE | WG | 150.5 | ND | 0.09 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 150.5 | ND | 0.09 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 150.5 | ND | 0.08 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 150.5 | ND | 0.09 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 150.5 | ND | 0.08 | 1 | µg/L | U | MS-A048406 |
| 90MW0077 | 90MW0077- | 12/13/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 150.5 | ND | 0.11 | 1 | µg/L | U | MS-A048406 |
| 90MW0078 | 90MW0078- | 12/13/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 149.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A048407 |
| 90MW0078 | 90MW0078- | 12/13/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 149.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A048407 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 149.5 | ND | 0.09 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 149.5 | ND | 0.13 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 149.5 | ND | 0.11 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 149.5 | ND | 0.07 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 149.5 | ND | 0.09 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 149.5 | ND | 0.14 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 149.5 | - | - | - | µg/L | R | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 149.5 | ND | 0.1 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 149.5 | ND | 0.08 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 149.5 | ND | 0.09 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 149.5 | ND | 0.15 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 149.5 | ND | 0.09 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 149.5 | ND | 0.1 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | 2-HEXANONE | WG | 149.5 | ND | 0.83 | 5 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | ACETONE | WG | 149.5 | - | - | - | µg/L | R | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | BENZENE | WG | 149.5 | ND | 0.11 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 149.5 | ND | 0.1 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 149.5 | ND | 0.07 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | BROMOFORM | WG | 149.5 | ND | 0.19 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | BROMOMETHANE | WG | 149.5 | ND | 0.15 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 149.5 | ND | 0.08 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 149.5 | ND | 0.08 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | CHLOROBENZENE | WG | 149.5 | ND | 0.1 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | CHLOROETHANE | WG | 149.5 | ND | 0.08 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | CHLOROFORM | WG | 149.5 | ND | 0.08 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | CHLOROMETHANE | WG | 149.5 | ND | 0.1 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 149.5 | ND | 0.08 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 149.5 | ND | 0.07 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 149.5 | ND | 0.09 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | ETHYLBENZENE | WG | 149.5 | ND | 0.1 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 149.5 | - | - | - | µg/L | R | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 149.5 | ND | 0.72 | 5 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 149.5 | ND | 0.09 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 149.5 | ND | 0.82 | 10 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | STYRENE | WG | 149.5 | ND | 0.12 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 149.5 | ND | 0.11 | 1 | µg/L | U | MS-A048408 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | TOLUENE | WG | 149.5 | ND | 0.09 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 149.5 | ND | 0.09 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 149.5 | ND | 0.08 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 149.5 | ND | 0.09 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 149.5 | ND | 0.08 | 1 | µg/L | U | MS-A048408 |
| 90MW0078 | 90MW0078- | 12/13/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 149.5 | ND | 0.11 | 1 | µg/L | U | MS-A048408 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 148.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A046201 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 148.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A046201 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 148.5 | ND | 0.09 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 148.5 | ND | 0.13 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 148.5 | ND | 0.11 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 148.5 | ND | 0.07 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 148.5 | ND | 0.09 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 148.5 | ND | 0.14 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 148.5 | - | - | - | µg/L | R | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 148.5 | ND | 0.1 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 148.5 | ND | 0.08 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 148.5 | ND | 0.09 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 148.5 | ND | 0.15 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 148.5 | ND | 0.09 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 148.5 | ND | 0.1 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | 2-HEXANONE | WG | 148.5 | ND | 0.83 | 5 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | ACETONE | WG | 148.5 | - | - | - | µg/L | R | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | BENZENE | WG | 148.5 | ND | 0.11 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 148.5 | ND | 0.1 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 148.5 | ND | 0.07 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | BROMOFORM | WG | 148.5 | ND | 0.19 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | BROMOMETHANE | WG | 148.5 | ND | 0.15 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 148.5 | ND | 0.08 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 148.5 | ND | 0.08 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | CHLOROBENZENE | WG | 148.5 | ND | 0.1 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | CHLOROETHANE | WG | 148.5 | ND | 0.08 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | CHLOROFORM | WG | 148.5 | ND | 0.08 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | CHLOROMETHANE | WG | 148.5 | ND | 0.1 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 148.5 | ND | 0.08 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 148.5 | ND | 0.07 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 148.5 | ND | 0.09 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | ETHYLBENZENE | WG | 148.5 | ND | 0.1 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 148.5 | - | - | - | µg/L | R | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 148.5 | ND | 0.72 | 5 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 148.5 | ND | 0.09 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 148.5 | ND | 0.08 | 2 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | STYRENE | WG | 148.5 | ND | 0.12 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 148.5 | ND | 0.11 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | TOLUENE | WG | 148.5 | ND | 0.09 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 148.5 | ND | 0.09 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 148.5 | ND | 0.08 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 148.5 | ND | 0.09 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 148.5 | ND | 0.08 | 1 | µg/L | U | MS-A046202 |
| 90MW0079A | 90MW0079A- | 12/11/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 148.5 | ND | 0.11 | 1 | µg/L | U | MS-A046202 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0079B | 90MW0079B- | 12/11/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 188.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A046203 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 188.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A046203 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 188.5 | ND | 0.09 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 188.5 | ND | 0.13 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 188.5 | ND | 0.11 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 188.5 | ND | 0.07 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 188.5 | ND | 0.09 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 188.5 | ND | 0.14 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 188.5 | - | - | - | µg/L | R | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 188.5 | ND | 0.1 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 188.5 | ND | 0.08 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 188.5 | ND | 0.09 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 188.5 | ND | 0.15 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 188.5 | ND | 0.09 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 188.5 | ND | 0.1 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | 2-HEXANONE | WG | 188.5 | ND | 0.83 | 5 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | ACETONE | WG | 188.5 | - | - | - | µg/L | R | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | BENZENE | WG | 188.5 | ND | 0.11 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 188.5 | ND | 0.1 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 188.5 | ND | 0.07 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | BROMOFORM | WG | 188.5 | ND | 0.19 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | BROMOMETHANE | WG | 188.5 | ND | 0.15 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 188.5 | ND | 0.08 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 188.5 | ND | 0.08 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | CHLOROBENZENE | WG | 188.5 | ND | 0.1 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | CHLOROETHANE | WG | 188.5 | ND | 0.08 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | CHLOROFORM | WG | 188.5 | ND | 0.08 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | CHLOROMETHANE | WG | 188.5 | ND | 0.1 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 188.5 | ND | 0.08 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 188.5 | ND | 0.07 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 188.5 | ND | 0.09 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | ETHYLBENZENE | WG | 188.5 | ND | 0.1 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 188.5 | - | - | - | µg/L | R | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 188.5 | ND | 0.72 | 5 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 188.5 | ND | 0.09 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 188.5 | ND | 1.5 | 5.3 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | STYRENE | WG | 188.5 | ND | 0.12 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 188.5 | ND | 0.11 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | TOLUENE | WG | 188.5 | ND | 0.09 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 188.5 | ND | 0.09 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 188.5 | ND | 0.08 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 188.5 | ND | 0.09 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 188.5 | ND | 0.08 | 1 | µg/L | U | MS-A046204 |
| 90MW0079B | 90MW0079B- | 12/11/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 188.5 | ND | 0.11 | 1 | µg/L | U | MS-A046204 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 222.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A046205 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 222.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A046205 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 222.5 | ND | 0.09 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 222.5 | ND | 0.13 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 222.5 | ND | 0.11 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 222.5 | ND | 0.07 | 1 | µg/L | U | MS-A046206 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 222.5 | ND | 0.09 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 222.5 | ND | 0.14 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 222.5 | - | - | - | µg/L | R | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 222.5 | ND | 0.1 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 222.5 | ND | 0.08 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 222.5 | ND | 0.09 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 222.5 | ND | 0.15 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 222.5 | ND | 0.09 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 222.5 | ND | 0.1 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | 2-HEXANONE | WG | 222.5 | ND | 0.83 | 5 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | ACETONE | WG | 222.5 | - | - | - | µg/L | R | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | BENZENE | WG | 222.5 | ND | 0.11 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 222.5 | ND | 0.1 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 222.5 | ND | 0.07 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | BROMOFORM | WG | 222.5 | ND | 0.19 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | BROMOMETHANE | WG | 222.5 | ND | 0.15 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 222.5 | ND | 0.08 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 222.5 | ND | 0.08 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | CHLOROBENZENE | WG | 222.5 | ND | 0.1 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | CHLOROETHANE | WG | 222.5 | ND | 0.08 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | CHLOROFORM | WG | 222.5 | ND | 0.08 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | CHLOROMETHANE | WG | 222.5 | ND | 0.1 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 222.5 | ND | 0.08 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 222.5 | ND | 0.07 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 222.5 | ND | 0.09 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | ETHYLBENZENE | WG | 222.5 | ND | 0.1 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 222.5 | - | - | - | µg/L | R | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 222.5 | ND | 0.72 | 5 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 222.5 | ND | 0.09 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 222.5 | ND | 0.64 | 5.1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | STYRENE | WG | 222.5 | ND | 0.12 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 222.5 | ND | 0.11 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | TOLUENE | WG | 222.5 | ND | 0.09 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 222.5 | ND | 0.09 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 222.5 | ND | 0.08 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 222.5 | ND | 0.09 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 222.5 | ND | 0.08 | 1 | µg/L | U | MS-A046206 |
| 90MW0079C | 90MW0079C- | 12/11/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 222.5 | ND | 0.11 | 1 | µg/L | U | MS-A046206 |
| 90MW0080 | 90MW0080- | 12/13/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 141.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A048501 |
| 90MW0080 | 90MW0080- | 12/13/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 141.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A048501 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 141.5 | ND | 0.09 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 141.5 | ND | 0.13 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 141.5 | ND | 0.11 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 141.5 | ND | 0.07 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 141.5 | ND | 0.09 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 141.5 | ND | 0.14 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 141.5 | - | - | - | µg/L | R | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 141.5 | ND | 0.1 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 141.5 | ND | 0.08 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 141.5 | ND | 0.09 | 1 | µg/L | U | MS-A048502 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 141.5 | ND | 0.15 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 141.5 | ND | 0.09 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 141.5 | ND | 0.1 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | 2-HEXANONE | WG | 141.5 | ND | 0.83 | 5 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | ACETONE | WG | 141.5 | - | - | - | µg/L | R | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | BENZENE | WG | 141.5 | ND | 0.11 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 141.5 | ND | 0.1 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 141.5 | ND | 0.07 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | BROMOFORM | WG | 141.5 | ND | 0.19 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | BROMOMETHANE | WG | 141.5 | ND | 0.15 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 141.5 | ND | 0.08 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 141.5 | ND | 0.08 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | CHLOROBENZENE | WG | 141.5 | ND | 0.1 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | CHLOROETHANE | WG | 141.5 | ND | 0.08 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | CHLOROFORM | WG | 141.5 | ND | 0.08 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | CHLOROMETHANE | WG | 141.5 | ND | 0.1 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 141.5 | ND | 0.08 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 141.5 | ND | 0.07 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 141.5 | ND | 0.09 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | ETHYLBENZENE | WG | 141.5 | ND | 0.1 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 141.5 | - | - | - | µg/L | R | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 141.5 | ND | 0.72 | 5 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 141.5 | ND | 0.09 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 141.5 | ND | 0.6 | 10 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | STYRENE | WG | 141.5 | ND | 0.12 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 141.5 | ND | 0.11 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | TOLUENE | WG | 141.5 | ND | 0.09 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 141.5 | ND | 0.09 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 141.5 | ND | 0.08 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 141.5 | ND | 0.09 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 141.5 | ND | 0.08 | 1 | µg/L | U | MS-A048502 |
| 90MW0080 | 90MW0080- | 12/13/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 141.5 | ND | 0.11 | 1 | µg/L | U | MS-A048502 |
| 90MW0081 | 90MW0081- | 12/13/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 111.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A048503 |
| 90MW0081 | 90MW0081- | 12/13/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 111.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A048503 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 111.5 | ND | 0.09 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 111.5 | ND | 0.13 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 111.5 | ND | 0.11 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 111.5 | ND | 0.07 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 111.5 | ND | 0.09 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 111.5 | ND | 0.14 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 111.5 | - | - | - | µg/L | R | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 111.5 | ND | 0.1 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 111.5 | ND | 0.08 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 111.5 | ND | 0.09 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 111.5 | ND | 0.15 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 111.5 | ND | 0.09 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 111.5 | ND | 0.1 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | 2-HEXANONE | WG | 111.5 | ND | 0.83 | 5 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | ACETONE | WG | 111.5 | - | - | - | µg/L | R | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | BENZENE | WG | 111.5 | ND | 0.11 | 1 | µg/L | U | MS-A048504 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 111.5 | ND | 0.1 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 111.5 | ND | 0.07 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | BROMOFORM | WG | 111.5 | ND | 0.19 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | BROMOMETHANE | WG | 111.5 | ND | 0.15 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 111.5 | ND | 0.08 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 111.5 | ND | 0.08 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | CHLOROBENZENE | WG | 111.5 | ND | 0.1 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | CHLOROETHANE | WG | 111.5 | ND | 0.08 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | CHLOROFORM | WG | 111.5 | 1.7 | 0.08 | 1 | µg/L | | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | CHLOROMETHANE | WG | 111.5 | ND | 0.1 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 111.5 | ND | 0.08 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 111.5 | ND | 0.07 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 111.5 | ND | 0.09 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | ETHYLBENZENE | WG | 111.5 | ND | 0.1 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 111.5 | - | - | - | µg/L | R | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 111.5 | ND | 0.72 | 5 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 111.5 | ND | 0.09 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 111.5 | ND | 0.52 | 10 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | STYRENE | WG | 111.5 | ND | 0.12 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 111.5 | ND | 0.11 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | TOLUENE | WG | 111.5 | ND | 0.09 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 111.5 | ND | 0.09 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 111.5 | ND | 0.08 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 111.5 | ND | 0.09 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 111.5 | ND | 0.08 | 1 | µg/L | U | MS-A048504 |
| 90MW0081 | 90MW0081- | 12/13/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 111.5 | ND | 0.11 | 1 | µg/L | U | MS-A048504 |
| 90MW0083 | 90MW0083- | 12/13/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 109.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A048505 |
| 90MW0083 | 90MW0083- | 12/13/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 109.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A048505 |
| 90MW0083 | 90MW0083- | 12/13/2000 | E160.2 | N1 | SUSPENDED SOLIDS (RESIDUE, NON-FILT | WG | 109.5 | ND | 4 | 4 | MG/L | U | MS-A048507 |
| 90MW0083 | 90MW0083- | 12/13/2000 | C200.7 | N1 | ALUMINUM (TOTAL) | WG | 109.5 | ND | 54.7 | 200 | µg/L | U | MS-A048601 |
| 90MW0083 | 90MW0083- | 12/13/2000 | C200.7 | N1 | ANTIMONY (TOTAL) | WG | 109.5 | ND | 5.7 | 6 | µg/L | U | MS-A048601 |
| 90MW0083 | 90MW0083- | 12/13/2000 | C200.7 | N1 | ARSENIC (TOTAL) | WG | 109.5 | ND | 4.3 | 10 | µg/L | U | MS-A048601 |
| 90MW0083 | 90MW0083- | 12/13/2000 | C200.7 | N1 | BARIUM (TOTAL) | WG | 109.5 | ND | 3 | 200 | µg/L | U | MS-A048601 |
| 90MW0083 | 90MW0083- | 12/13/2000 | C200.7 | N1 | BERYLLIUM (TOTAL) | WG | 109.5 | ND | 0.6 | 4 | µg/L | U | MS-A048601 |
| 90MW0083 | 90MW0083- | 12/13/2000 | C200.7 | N1 | CADMIUM (TOTAL) | WG | 109.5 | ND | 0.5 | 5 | µg/L | U | MS-A048601 |
| 90MW0083 | 90MW0083- | 12/13/2000 | C200.7 | N1 | CALCIUM (TOTAL) | WG | 109.5 | 1360 | 47.4 | 5000 | µg/L | J | MS-A048601 |
| 90MW0083 | 90MW0083- | 12/13/2000 | C200.7 | N1 | CHROMIUM (TOTAL) | WG | 109.5 | 2.4 | 0.7 | 10 | µg/L | J | MS-A048601 |
| 90MW0083 | 90MW0083- | 12/13/2000 | C200.7 | N1 | COBALT (TOTAL) | WG | 109.5 | ND | 4.1 | 50 | µg/L | U | MS-A048601 |
| 90MW0083 | 90MW0083- | 12/13/2000 | C200.7 | N1 | COPPER (TOTAL) | WG | 109.5 | ND | 1.6 | 25 | µg/L | UJ | MS-A048601 |
| 90MW0083 | 90MW0083- | 12/13/2000 | C200.7 | N1 | IRON (TOTAL) | WG | 109.5 | ND | 132 | 340 | µg/L | U | MS-A048601 |
| 90MW0083 | 90MW0083- | 12/13/2000 | C200.7 | N1 | LEAD (TOTAL) | WG | 109.5 | ND | 2.7 | 3 | µg/L | U | MS-A048601 |
| 90MW0083 | 90MW0083- | 12/13/2000 | C200.7 | N1 | MAGNESIUM (TOTAL) | WG | 109.5 | 848 | 59.4 | 5000 | µg/L | J | MS-A048601 |
| 90MW0083 | 90MW0083- | 12/13/2000 | C200.7 | N1 | MANGANESE (TOTAL) | WG | 109.5 | ND | 1.2 | 15 | µg/L | U | MS-A048601 |
| 90MW0083 | 90MW0083- | 12/13/2000 | C200.7 | N1 | NICKEL (TOTAL) | WG | 109.5 | ND | 2.7 | 40 | µg/L | U | MS-A048601 |
| 90MW0083 | 90MW0083- | 12/13/2000 | C200.7 | N1 | POTASSIUM (TOTAL) | WG | 109.5 | ND | 554 | 5000 | µg/L | U | MS-A048601 |
| 90MW0083 | 90MW0083- | 12/13/2000 | C200.7 | N1 | SILVER (TOTAL) | WG | 109.5 | ND | 0.6 | 10 | µg/L | UJ | MS-A048601 |
| 90MW0083 | 90MW0083- | 12/13/2000 | C200.7 | N1 | SODIUM (TOTAL) | WG | 109.5 | 11800 | 385 | 5000 | µg/L | | MS-A048601 |
| 90MW0083 | 90MW0083- | 12/13/2000 | C200.7 | N1 | VANADIUM (TOTAL) | WG | 109.5 | ND | 1.1 | 50 | µg/L | U | MS-A048601 |
| 90MW0083 | 90MW0083- | 12/13/2000 | C200.7 | N1 | ZINC (TOTAL) | WG | 109.5 | ND | 4.4 | 20 | µg/L | U | MS-A048601 |
| 90MW0083 | 90MW0083- | 12/13/2000 | C245.1 | N1 | MERCURY (TOTAL) | WG | 109.5 | ND | 0.1 | 0.2 | µg/L | U | MS-A048601 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0083 | 90MW0083- | 12/13/2000 | C270.2 | N1 | SELENIUM (TOTAL) | WG | 109.5 | ND | 1.5 | 5 | µg/L | U | MS-A048601 |
| 90MW0083 | 90MW0083- | 12/13/2000 | C279.2 | N1 | THALLIUM (TOTAL) | WG | 109.5 | ND | 1.4 | 2 | µg/L | U | MS-A048601 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 109.5 | ND | 0.09 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 109.5 | ND | 0.13 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 109.5 | ND | 0.11 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 109.5 | ND | 0.07 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 109.5 | ND | 0.09 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 109.5 | ND | 0.14 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 109.5 | - | - | - | µg/L | R | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 109.5 | ND | 0.1 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 109.5 | ND | 0.08 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 109.5 | ND | 0.09 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 109.5 | ND | 0.15 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 109.5 | ND | 0.09 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 109.5 | ND | 0.1 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | 2-HEXANONE | WG | 109.5 | ND | 0.83 | 5 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | ACETONE | WG | 109.5 | - | - | - | µg/L | R | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | BENZENE | WG | 109.5 | ND | 0.11 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 109.5 | ND | 0.1 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 109.5 | ND | 0.07 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | BROMOFORM | WG | 109.5 | ND | 0.19 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | BROMOMETHANE | WG | 109.5 | ND | 0.15 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 109.5 | ND | 0.08 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 109.5 | ND | 0.08 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | CHLOROBENZENE | WG | 109.5 | ND | 0.1 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | CHLOROETHANE | WG | 109.5 | ND | 0.08 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | CHLOROFORM | WG | 109.5 | ND | 0.08 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | CHLOROMETHANE | WG | 109.5 | ND | 0.1 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 109.5 | ND | 0.08 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 109.5 | ND | 0.07 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 109.5 | ND | 0.09 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | ETHYLBENZENE | WG | 109.5 | ND | 0.1 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 109.5 | - | - | - | µg/L | R | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 109.5 | ND | 0.72 | 5 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 109.5 | ND | 0.09 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 109.5 | ND | 0.68 | 10 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | STYRENE | WG | 109.5 | ND | 0.12 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 109.5 | ND | 0.11 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | TOLUENE | WG | 109.5 | ND | 0.09 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 109.5 | ND | 0.09 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 109.5 | ND | 0.08 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 109.5 | ND | 0.09 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 109.5 | ND | 0.08 | 1 | µg/L | U | MS-A048506 |
| 90MW0083 | 90MW0083- | 12/13/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 109.5 | ND | 0.11 | 1 | µg/L | U | MS-A048506 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 162.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A045905 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 162.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A045905 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 162.5 | ND | 0.09 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 162.5 | ND | 0.13 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 162.5 | ND | 0.11 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 162.5 | ND | 0.07 | 1 | µg/L | U | MS-A045906 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 162.5 | ND | 0.09 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 162.5 | ND | 0.14 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 162.5 | - | - | - | µg/L | R | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 162.5 | ND | 0.1 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 162.5 | ND | 0.08 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 162.5 | ND | 0.09 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 162.5 | ND | 0.15 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 162.5 | ND | 0.09 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 162.5 | ND | 0.1 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | 2-HEXANONE | WG | 162.5 | ND | 0.83 | 5 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | ACETONE | WG | 162.5 | - | - | - | µg/L | R | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | BENZENE | WG | 162.5 | ND | 0.11 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 162.5 | ND | 0.1 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 162.5 | ND | 0.07 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | BROMOFORM | WG | 162.5 | ND | 0.19 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | BROMOMETHANE | WG | 162.5 | ND | 0.15 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 162.5 | ND | 0.08 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 162.5 | ND | 0.08 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | CHLOROBENZENE | WG | 162.5 | ND | 0.1 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | CHLOROETHANE | WG | 162.5 | ND | 0.08 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | CHLOROFORM | WG | 162.5 | ND | 0.08 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | CHLOROMETHANE | WG | 162.5 | ND | 0.1 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 162.5 | ND | 0.08 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 162.5 | ND | 0.07 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 162.5 | ND | 0.09 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | ETHYLBENZENE | WG | 162.5 | ND | 0.1 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 162.5 | - | - | - | µg/L | R | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 162.5 | ND | 0.72 | 5 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 162.5 | ND | 0.09 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 162.5 | ND | 0.54 | 5.1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | STYRENE | WG | 162.5 | ND | 0.12 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 162.5 | ND | 0.11 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | TOLUENE | WG | 162.5 | ND | 0.09 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 162.5 | ND | 0.09 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 162.5 | ND | 0.08 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 162.5 | ND | 0.09 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 162.5 | ND | 0.08 | 1 | µg/L | U | MS-A045906 |
| 90MW0084A | 90MW0084A- | 12/11/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 162.5 | ND | 0.11 | 1 | µg/L | U | MS-A045906 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 107.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A045907 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 107.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A045907 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 107.5 | ND | 0.09 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 107.5 | ND | 0.13 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 107.5 | ND | 0.11 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 107.5 | ND | 0.07 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 107.5 | ND | 0.09 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 107.5 | ND | 0.14 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 107.5 | - | - | - | µg/L | R | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 107.5 | ND | 0.1 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 107.5 | ND | 0.08 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 107.5 | ND | 0.09 | 1 | µg/L | U | MS-A045908 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 107.5 | ND | 0.15 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 107.5 | ND | 0.09 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 107.5 | ND | 0.1 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | 2-HEXANONE | WG | 107.5 | ND | 0.83 | 5 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | ACETONE | WG | 107.5 | - | - | - | µg/L | R | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | BENZENE | WG | 107.5 | ND | 0.11 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 107.5 | ND | 0.1 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 107.5 | ND | 0.07 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | BROMOFORM | WG | 107.5 | ND | 0.19 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | BROMOMETHANE | WG | 107.5 | ND | 0.15 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 107.5 | ND | 0.08 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 107.5 | ND | 0.08 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | CHLOROBENZENE | WG | 107.5 | ND | 0.1 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | CHLOROETHANE | WG | 107.5 | ND | 0.08 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | CHLOROFORM | WG | 107.5 | ND | 0.08 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | CHLOROMETHANE | WG | 107.5 | ND | 0.1 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 107.5 | ND | 0.08 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 107.5 | ND | 0.07 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 107.5 | ND | 0.09 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | ETHYLBENZENE | WG | 107.5 | ND | 0.1 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 107.5 | - | - | - | µg/L | R | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 107.5 | ND | 0.72 | 5 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 107.5 | ND | 0.09 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 107.5 | ND | 0.08 | 2 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | STYRENE | WG | 107.5 | ND | 0.12 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 107.5 | ND | 0.11 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | TOLUENE | WG | 107.5 | ND | 0.09 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 107.5 | ND | 0.09 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 107.5 | ND | 0.08 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 107.5 | ND | 0.09 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 107.5 | ND | 0.08 | 1 | µg/L | U | MS-A045908 |
| 90MW0084B | 90MW0084B- | 12/11/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 107.5 | ND | 0.11 | 1 | µg/L | U | MS-A045908 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 126.6 | ND | 0.0056 | 0.01 | µg/L | U | MS-A050001 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | E504 | FD1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 126.6 | ND | 0.0056 | 0.01 | µg/L | U | MS-A050004 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 126.6 | ND | 0.0048 | 0.01 | µg/L | U | MS-A050001 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | E504 | FD1 | 1,2-DIBROMOETHANE (EDB) | WG | 126.6 | ND | 0.0048 | 0.01 | µg/L | U | MS-A050004 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | E160.2 | N1 | SUSPENDED SOLIDS (RESIDUE, NON-FILT | WG | 126.6 | ND | 4 | 4 | MG/L | U | MS-A050003 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | E160.2 | FD1 | SUSPENDED SOLIDS (RESIDUE, NON-FILT | WG | 126.6 | ND | 4 | 4 | MG/L | U | MS-A050006 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | C200.7 | FD1 | ALUMINUM (TOTAL) | WG | 126.6 | ND | 54.7 | 200 | µg/L | U | MS-A049602 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | C200.7 | N1 | ALUMINUM (TOTAL) | WG | 126.6 | ND | 54.7 | 200 | µg/L | U | MS-A049601 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | C200.7 | N1 | ANTIMONY (TOTAL) | WG | 126.6 | ND | 5.7 | 6 | µg/L | U | MS-A049601 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | C200.7 | FD1 | ANTIMONY (TOTAL) | WG | 126.6 | ND | 5.7 | 6 | µg/L | U | MS-A049602 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | C200.7 | FD1 | ARSENIC (TOTAL) | WG | 126.6 | ND | 4.3 | 10 | µg/L | U | MS-A049602 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | C200.7 | N1 | ARSENIC (TOTAL) | WG | 126.6 | ND | 4.3 | 10 | µg/L | U | MS-A049601 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | C200.7 | FD1 | BARIUM (TOTAL) | WG | 126.6 | 3.3 | 0.2 | 200 | µg/L | J | MS-A049602 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | C200.7 | N1 | BARIUM (TOTAL) | WG | 126.6 | 3.4 | 0.2 | 200 | µg/L | J | MS-A049601 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | C200.7 | N1 | BERYLLIUM (TOTAL) | WG | 126.6 | ND | 0.6 | 4 | µg/L | U | MS-A049601 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | C200.7 | FD1 | BERYLLIUM (TOTAL) | WG | 126.6 | ND | 0.6 | 4 | µg/L | U | MS-A049602 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | C200.7 | N1 | CADMIUM (TOTAL) | WG | 126.6 | ND | 0.5 | 5 | µg/L | UJ | MS-A049601 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | C200.7 | FD1 | CADMIUM (TOTAL) | WG | 126.6 | ND | 0.5 | 5 | µg/L | UJ | MS-A049602 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0085A | 90MW0085A- | 12/15/2000 | C200.7 | N1 | CALCIUM (TOTAL) | WG | 126.6 | 2630 | 47.4 | 5000 | µg/L | J | MS-A049601 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | C200.7 | FD1 | CALCIUM (TOTAL) | WG | 126.6 | 2750 | 47.4 | 5000 | µg/L | J | MS-A049602 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | C200.7 | N1 | CHROMIUM (TOTAL) | WG | 126.6 | ND | 1.1 | 10 | µg/L | UJ | MS-A049601 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | C200.7 | FD1 | CHROMIUM (TOTAL) | WG | 126.6 | ND | 1.2 | 10 | µg/L | UJ | MS-A049602 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | C200.7 | FD1 | COBALT (TOTAL) | WG | 126.6 | ND | 1.1 | 50 | µg/L | UJ | MS-A049602 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | C200.7 | N1 | COBALT (TOTAL) | WG | 126.6 | ND | 1.1 | 50 | µg/L | UJ | MS-A049601 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | C200.7 | FD1 | COPPER (TOTAL) | WG | 126.6 | ND | 1.6 | 25 | µg/L | UJ | MS-A049602 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | C200.7 | N1 | COPPER (TOTAL) | WG | 126.6 | ND | 1.6 | 25 | µg/L | UJ | MS-A049601 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | C200.7 | FD1 | IRON (TOTAL) | WG | 126.6 | 41.2 | 35.1 | 100 | µg/L | J | MS-A049602 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | C200.7 | N1 | IRON (TOTAL) | WG | 126.6 | 42.9 | 35.1 | 100 | µg/L | J | MS-A049601 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | C200.7 | N1 | LEAD (TOTAL) | WG | 126.6 | ND | 2.4 | 3 | µg/L | U | MS-A049601 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | C200.7 | FD1 | LEAD (TOTAL) | WG | 126.6 | ND | 2.4 | 3 | µg/L | U | MS-A049602 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | C200.7 | N1 | MAGNESIUM (TOTAL) | WG | 126.6 | 1420 | 59.4 | 5000 | µg/L | J | MS-A049601 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | C200.7 | FD1 | MAGNESIUM (TOTAL) | WG | 126.6 | 1450 | 59.4 | 5000 | µg/L | J | MS-A049602 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | C200.7 | N1 | MANGANESE (TOTAL) | WG | 126.6 | ND | 1 | 15 | µg/L | U | MS-A049601 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | C200.7 | FD1 | MANGANESE (TOTAL) | WG | 126.6 | ND | 1 | 15 | µg/L | U | MS-A049602 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | C200.7 | FD1 | NICKEL (TOTAL) | WG | 126.6 | 2 | 1.1 | 40 | µg/L | J | MS-A049602 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | C200.7 | N1 | NICKEL (TOTAL) | WG | 126.6 | 2 | 1.1 | 40 | µg/L | J | MS-A049601 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | C200.7 | N1 | POTASSIUM (TOTAL) | WG | 126.6 | 794 | 21 | 5000 | µg/L | J | MS-A049601 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | C200.7 | FD1 | POTASSIUM (TOTAL) | WG | 126.6 | 820 | 21 | 5000 | µg/L | J | MS-A049602 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | C200.7 | N1 | SILVER (TOTAL) | WG | 126.6 | ND | 0.6 | 10 | µg/L | UJ | MS-A049601 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | C200.7 | FD1 | SILVER (TOTAL) | WG | 126.6 | ND | 0.6 | 10 | µg/L | UJ | MS-A049602 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | C200.7 | N1 | SODIUM (TOTAL) | WG | 126.6 | 9770 | 385 | 5000 | µg/L |  | MS-A049601 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | C200.7 | FD1 | SODIUM (TOTAL) | WG | 126.6 | 10000 | 385 | 5000 | µg/L |  | MS-A049602 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | C200.7 | FD1 | VANADIUM (TOTAL) | WG | 126.6 | ND | 1.1 | 50 | µg/L | U | MS-A049602 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | C200.7 | N1 | VANADIUM (TOTAL) | WG | 126.6 | ND | 1.1 | 50 | µg/L | U | MS-A049601 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | C200.7 | FD1 | ZINC (TOTAL) | WG | 126.6 | ND | 4.2 | 20 | µg/L | U | MS-A049602 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | C200.7 | N1 | ZINC (TOTAL) | WG | 126.6 | ND | 3.1 | 20 | µg/L | U | MS-A049601 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | C245.1 | N1 | MERCURY (TOTAL) | WG | 126.6 | ND | 0.1 | 0.2 | µg/L | U | MS-A049601 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | C245.1 | FD1 | MERCURY (TOTAL) | WG | 126.6 | ND | 0.1 | 0.2 | µg/L | U | MS-A049602 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | C270.2 | N1 | SELENIUM (TOTAL) | WG | 126.6 | ND | 1.5 | 5 | µg/L | U | MS-A049601 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | C270.2 | FD1 | SELENIUM (TOTAL) | WG | 126.6 | ND | 1.5 | 5 | µg/L | U | MS-A049602 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | C279.2 | N1 | THALLIUM (TOTAL) | WG | 126.6 | ND | 1.4 | 2 | µg/L | U | MS-A049601 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | C279.2 | FD1 | THALLIUM (TOTAL) | WG | 126.6 | ND | 1.4 | 2 | µg/L | U | MS-A049602 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 126.6 | ND | 0.09 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | 1,1,1-TRICHLOROETHANE | WG | 126.6 | ND | 0.09 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 126.6 | ND | 0.13 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | 1,1,2,2-TETRACHLOROETHANE | WG | 126.6 | ND | 0.13 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 126.6 | ND | 0.11 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | 1,1,2-TRICHLOROETHANE | WG | 126.6 | ND | 0.11 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 126.6 | ND | 0.07 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | 1,1-DICHLOROETHANE | WG | 126.6 | ND | 0.07 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 126.6 | ND | 0.09 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | 1,1-DICHLOROETHENE | WG | 126.6 | ND | 0.09 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 126.6 | ND | 0.14 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | 1,2,4-TRICHLOROBENZENE | WG | 126.6 | ND | 0.14 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 126.6 | - | - | - | µg/L | R | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 126.6 | - | - | - | µg/L | R | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 126.6 | ND | 0.1 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | 1,2-DIBROMOETHANE (EDB) | WG | 126.6 | ND | 0.1 | 1 | µg/L | U | MS-A050005 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 126.6 | ND | 0.08 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | 1,2-DICHLOROBENZENE | WG | 126.6 | ND | 0.08 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 126.6 | ND | 0.09 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | 1,2-DICHLOROETHANE | WG | 126.6 | ND | 0.09 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 126.6 | ND | 0.15 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | 1,2-DICHLOROPROPANE | WG | 126.6 | ND | 0.15 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | 1,3-DICHLOROBENZENE | WG | 126.6 | ND | 0.09 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 126.6 | ND | 0.09 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 126.6 | ND | 0.1 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | 1,4-DICHLOROBENZENE | WG | 126.6 | ND | 0.1 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | 2-HEXANONE | WG | 126.6 | ND | 0.83 | 5 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | 2-HEXANONE | WG | 126.6 | ND | 0.83 | 5 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | ACETONE | WG | 126.6 | - | - | - | µg/L | R | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | ACETONE | WG | 126.6 | - | - | - | µg/L | R | MS-A050002 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | BENZENE | WG | 126.6 | ND | 0.11 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | BENZENE | WG | 126.6 | ND | 0.11 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 126.6 | ND | 0.1 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | BROMOCHLOROMETHANE | WG | 126.6 | ND | 0.1 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 126.6 | ND | 0.07 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | BROMODICHLOROMETHANE | WG | 126.6 | ND | 0.07 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | BROMOFORM | WG | 126.6 | ND | 0.19 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | BROMOFORM | WG | 126.6 | ND | 0.19 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | BROMOMETHANE | WG | 126.6 | ND | 0.15 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | BROMOMETHANE | WG | 126.6 | ND | 0.15 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | CARBON DISULFIDE | WG | 126.6 | ND | 0.08 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 126.6 | ND | 0.08 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | CARBON TETRACHLORIDE | WG | 126.6 | ND | 0.08 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 126.6 | ND | 0.08 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | CHLOROBENZENE | WG | 126.6 | ND | 0.1 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | CHLOROBENZENE | WG | 126.6 | ND | 0.1 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | CHLOROETHANE | WG | 126.6 | ND | 0.08 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | CHLOROETHANE | WG | 126.6 | ND | 0.08 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | CHLOROFORM | WG | 126.6 | ND | 0.08 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | CHLOROFORM | WG | 126.6 | ND | 0.08 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | CHLOROMETHANE | WG | 126.6 | ND | 0.1 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | CHLOROMETHANE | WG | 126.6 | ND | 0.1 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 126.6 | ND | 0.08 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | CIS-1,2-DICHLOROETHENE | WG | 126.6 | ND | 0.08 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 126.6 | ND | 0.07 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | CIS-1,3-DICHLOROPROPENE | WG | 126.6 | ND | 0.07 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 126.6 | ND | 0.09 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | DIBROMOCHLOROMETHANE | WG | 126.6 | ND | 0.09 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | ETHYLBENZENE | WG | 126.6 | ND | 0.1 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | ETHYLBENZENE | WG | 126.6 | ND | 0.1 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 126.6 | - | - | - | µg/L | R | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 126.6 | - | - | - | µg/L | R | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 126.6 | ND | 0.72 | 5 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 126.6 | ND | 0.72 | 5 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 126.6 | ND | 0.09 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 126.6 | ND | 0.09 | 1 | µg/L | U | MS-A050002 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 126.6 | ND | 0.71 | 10 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | METHYLENE CHLORIDE | WG | 126.6 | ND | 0.69 | 10 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | STYRENE | WG | 126.6 | ND | 0.12 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | STYRENE | WG | 126.6 | ND | 0.12 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 126.6 | ND | 0.11 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | TETRACHLOROETHENE(PCE) | WG | 126.6 | ND | 0.11 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | TOLUENE | WG | 126.6 | ND | 0.09 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | TOLUENE | WG | 126.6 | ND | 0.09 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | TRANS-1,2-DICHLOROETHENE | WG | 126.6 | ND | 0.09 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 126.6 | ND | 0.09 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 126.6 | ND | 0.08 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | TRANS-1,3-DICHLOROPROPENE | WG | 126.6 | ND | 0.08 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 126.6 | ND | 0.09 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | TRICHLOROETHENE(TCE) | WG | 126.6 | ND | 0.09 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 126.6 | ND | 0.08 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | VINYL CHLORIDE | WG | 126.6 | ND | 0.08 | 1 | µg/L | U | MS-A050005 |
| 90MW0085A | 90MW0085A- | 12/15/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 126.6 | ND | 0.11 | 1 | µg/L | U | MS-A050002 |
| 90MW0085A | 90MW0085A-FD | 12/15/2000 | CVOL | FD1 | XYLENES, TOTAL | WG | 126.6 | ND | 0.11 | 1 | µg/L | U | MS-A050005 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 91.6 | ND | 0.0056 | 0.01 | µg/L | U | MS-A049504 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 91.6 | ND | 0.0048 | 0.01 | µg/L | U | MS-A049504 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | E160.2 | N1 | SUSPENDED SOLIDS (RESIDUE, NON-FILT | WG | 91.6 | ND | 4 | 4 | MG/L | U | MS-A049506 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | C200.7 | N1 | ALUMINUM (TOTAL) | WG | 91.6 | ND | 54.7 | 200 | µg/L | U | MS-A049604 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | C200.7 | N1 | ANTIMONY (TOTAL) | WG | 91.6 | ND | 5.7 | 6 | µg/L | U | MS-A049604 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | C200.7 | N1 | ARSENIC (TOTAL) | WG | 91.6 | ND | 4.3 | 10 | µg/L | U | MS-A049604 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | C200.7 | N1 | BARIUM (TOTAL) | WG | 91.6 | 5.2 | 0.2 | 200 | µg/L | J | MS-A049604 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | C200.7 | N1 | BERYLLIUM (TOTAL) | WG | 91.6 | ND | 0.6 | 4 | µg/L | U | MS-A049604 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | C200.7 | N1 | CADMIUM (TOTAL) | WG | 91.6 | ND | 0.5 | 5 | µg/L | UJ | MS-A049604 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | C200.7 | N1 | CALCIUM (TOTAL) | WG | 91.6 | 2560 | 47.4 | 5000 | µg/L | J | MS-A049604 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | C200.7 | N1 | CHROMIUM (TOTAL) | WG | 91.6 | ND | 1.5 | 10 | µg/L | UJ | MS-A049604 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | C200.7 | N1 | COBALT (TOTAL) | WG | 91.6 | 2.7 | 1.1 | 50 | µg/L | J | MS-A049604 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | C200.7 | N1 | COPPER (TOTAL) | WG | 91.6 | ND | 1.6 | 25 | µg/L | UJ | MS-A049604 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | C200.7 | N1 | IRON (TOTAL) | WG | 91.6 | ND | 54.7 | 139 | µg/L | U | MS-A049604 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | C200.7 | N1 | LEAD (TOTAL) | WG | 91.6 | ND | 2.4 | 3 | µg/L | U | MS-A049604 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | C200.7 | N1 | MAGNESIUM (TOTAL) | WG | 91.6 | 1520 | 59.4 | 5000 | µg/L | J | MS-A049604 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | C200.7 | N1 | MANGANESE (TOTAL) | WG | 91.6 | ND | 1 | 15 | µg/L | U | MS-A049604 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | C200.7 | N1 | NICKEL (TOTAL) | WG | 91.6 | ND | 2 | 40 | µg/L | U | MS-A049604 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | C200.7 | N1 | POTASSIUM (TOTAL) | WG | 91.6 | 834 | 21 | 5000 | µg/L | J | MS-A049604 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | C200.7 | N1 | SILVER (TOTAL) | WG | 91.6 | ND | 0.6 | 10 | µg/L | UJ | MS-A049604 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | C200.7 | N1 | SODIUM (TOTAL) | WG | 91.6 | 11000 | 385 | 5000 | µg/L | | MS-A049604 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | C200.7 | N1 | VANADIUM (TOTAL) | WG | 91.6 | ND | 1.1 | 50 | µg/L | U | MS-A049604 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | C200.7 | N1 | ZINC (TOTAL) | WG | 91.6 | ND | 3.1 | 20 | µg/L | U | MS-A049604 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | C245.1 | N1 | MERCURY (TOTAL) | WG | 91.6 | ND | 0.1 | 0.2 | µg/L | U | MS-A049604 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | C270.2 | N1 | SELENIUM (TOTAL) | WG | 91.6 | ND | 1.5 | 5 | µg/L | U | MS-A049604 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | C279.2 | N1 | THALLIUM (TOTAL) | WG | 91.6 | ND | 1.4 | 2 | µg/L | U | MS-A049604 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 91.6 | ND | 0.09 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 91.6 | ND | 0.13 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 91.6 | ND | 0.11 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 91.6 | ND | 0.07 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 91.6 | ND | 0.09 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 91.6 | ND | 0.14 | 1 | µg/L | U | MS-A049505 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 91.6 | - | - | - | µg/L | R | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 91.6 | ND | 0.1 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 91.6 | ND | 0.08 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 91.6 | ND | 0.09 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 91.6 | ND | 0.15 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 91.6 | ND | 0.09 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 91.6 | ND | 0.1 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | 2-HEXANONE | WG | 91.6 | ND | 0.83 | 5 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | ACETONE | WG | 91.6 | - | - | - | µg/L | R | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | BENZENE | WG | 91.6 | ND | 0.11 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 91.6 | ND | 0.1 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 91.6 | ND | 0.07 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | BROMOFORM | WG | 91.6 | ND | 0.19 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | BROMOMETHANE | WG | 91.6 | ND | 0.15 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 91.6 | ND | 0.08 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 91.6 | ND | 0.08 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | CHLOROBENZENE | WG | 91.6 | ND | 0.1 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | CHLOROETHANE | WG | 91.6 | ND | 0.08 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | CHLOROFORM | WG | 91.6 | ND | 0.08 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | CHLOROMETHANE | WG | 91.6 | ND | 0.1 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 91.6 | ND | 0.08 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 91.6 | ND | 0.07 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 91.6 | ND | 0.09 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | ETHYLBENZENE | WG | 91.6 | ND | 0.1 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 91.6 | - | - | - | µg/L | R | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 91.6 | ND | 0.72 | 5 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 91.6 | ND | 0.09 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 91.6 | ND | 0.63 | 10 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | STYRENE | WG | 91.6 | ND | 0.12 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 91.6 | ND | 0.11 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | TOLUENE | WG | 91.6 | ND | 0.09 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 91.6 | ND | 0.09 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 91.6 | ND | 0.08 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 91.6 | ND | 0.09 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 91.6 | ND | 0.08 | 1 | µg/L | U | MS-A049505 |
| 90MW0085B | 90MW0085B- | 12/15/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 91.6 | ND | 0.11 | 1 | µg/L | U | MS-A049505 |
| 90MW0086A | 90MW0086A- | 12/12/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 221.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A046801 |
| 90MW0086A | 90MW0086A- | 12/12/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 221.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A046801 |
| 90MW0086B | 90MW0086B- | 12/12/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 186.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A046802 |
| 90MW0086B | 90MW0086B- | 12/12/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 186.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A046802 |
| 90MW0086C | 90MW0086C- | 12/12/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 157.05 | ND | 0.0056 | 0.01 | µg/L | U | MS-A046803 |
| 90MW0086C | 90MW0086C- | 12/12/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 157.05 | ND | 0.0048 | 0.01 | µg/L | U | MS-A046803 |
| 90MW0086D | 90MW0086D- | 12/12/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 125.4 | ND | 0.0056 | 0.01 | µg/L | U | MS-A046804 |
| 90MW0086D | 90MW0086D- | 12/12/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 125.4 | ND | 0.0048 | 0.01 | µg/L | U | MS-A046804 |
| 90MW0087A | 90MW0087A- | 12/12/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 184.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A046905 |
| 90MW0087A | 90MW0087A- | 12/12/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 184.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A046905 |
| 90MW0087B | 90MW0087B- | 12/12/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 119.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A046906 |
| 90MW0087B | 90MW0087B- | 12/12/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 119.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A046906 |
| 90MW0088A | 90MW0088A- | 12/14/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 188.3 | ND | 0.0056 | 0.01 | µg/L | U | MS-A049103 |
| 90MW0088A | 90MW0088A-FD | 12/14/2000 | E504 | FD1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 188.3 | ND | 0.0056 | 0.01 | µg/L | U | MS-A049104 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0088A | 90MW0088A- | 12/14/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 188.3 | ND | 0.0048 | 0.01 | µg/L | U | MS-A049103 |
| 90MW0088A | 90MW0088A-FD | 12/14/2000 | E504 | FD1 | 1,2-DIBROMOETHANE (EDB) | WG | 188.3 | ND | 0.0048 | 0.01 | µg/L | U | MS-A049104 |
| 90MW0088B | 90MW0088B- | 12/14/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 133.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A049105 |
| 90MW0088B | 90MW0088B- | 12/14/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 133.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A049105 |
| 90MW0089A | 90MW0089A- | 12/12/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 223.3 | ND | 0.0056 | 0.01 | µg/L | U | MS-A047704 |
| 90MW0089A | 90MW0089A- | 12/12/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 223.3 | ND | 0.0048 | 0.01 | µg/L | U | MS-A047704 |
| 90MW0089B | 90MW0089B- | 12/12/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 192.3 | ND | 0.0056 | 0.01 | µg/L | U | MS-A047705 |
| 90MW0089B | 90MW0089B- | 12/12/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 192.3 | ND | 0.0048 | 0.01 | µg/L | U | MS-A047705 |
| 90MW0089C | 90MW0089C- | 12/11/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 172.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A046001 |
| 90MW0089C | 90MW0089C- | 12/11/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 172.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A046001 |
| 90MW0089D | 90MW0089D- | 12/11/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 147.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A046002 |
| 90MW0089D | 90MW0089D- | 12/11/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 147.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A046002 |
| 90MW0089E | 90MW0089E- | 12/11/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 117.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A046003 |
| 90MW0089E | 90MW0089E- | 12/11/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 117.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A046003 |
| 90MW0089F | 90MW0089F- | 12/11/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 82.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A046004 |
| 90MW0089F | 90MW0089F- | 12/11/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 82.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A046004 |
| 90MW0090A | 90MW0090A- | 12/12/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 212.7 | ND | 0.0056 | 0.01 | µg/L | U | MS-A047403 |
| 90MW0090A | 90MW0090A-FD | 12/12/2000 | E504 | FD1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 212.7 | ND | 0.0056 | 0.01 | µg/L | U | MS-A047404 |
| 90MW0090A | 90MW0090A- | 12/12/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 212.7 | ND | 0.0048 | 0.01 | µg/L | U | MS-A047403 |
| 90MW0090A | 90MW0090A-FD | 12/12/2000 | E504 | FD1 | 1,2-DIBROMOETHANE (EDB) | WG | 212.7 | ND | 0.0048 | 0.01 | µg/L | U | MS-A047404 |
| 90MW0090B | 90MW0090B- | 12/12/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 192.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A047405 |
| 90MW0090B | 90MW0090B- | 12/12/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 192.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A047405 |
| 90MW0090C | 90MW0090C- | 12/11/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 172.65 | ND | 0.0056 | 0.01 | µg/L | U | MS-A046101 |
| 90MW0090C | 90MW0090C- | 12/11/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 172.65 | ND | 0.0048 | 0.01 | µg/L | U | MS-A046101 |
| 90MW0090D | 90MW0090D- | 12/11/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 147.45 | ND | 0.0056 | 0.01 | µg/L | U | MS-A046102 |
| 90MW0090D | 90MW0090D- | 12/11/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 147.45 | ND | 0.0048 | 0.01 | µg/L | U | MS-A046102 |
| 90MW0090E | 90MW0090E- | 12/11/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 117.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A046103 |
| 90MW0090E | 90MW0090E- | 12/11/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 117.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A046103 |
| 90MW0090F | 90MW0090F- | 12/11/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 82.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A046104 |
| 90MW0090F | 90MW0090F- | 12/11/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 82.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A046104 |
| 90MW0091A | 90MW0091A- | 12/15/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 194.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A049301 |
| 90MW0091A | 90MW0091A- | 12/15/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 194.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A049301 |
| 90MW0091B | 90MW0091B- | 12/15/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 172.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A049302 |
| 90MW0091B | 90MW0091B- | 12/15/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 172.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A049302 |
| 90MW0091C | 90MW0091C- | 12/19/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 152.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A050801 |
| 90MW0091C | 90MW0091C-FD | 12/19/2000 | E504 | FD1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 152.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A050802 |
| 90MW0091C | 90MW0091C- | 12/19/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 152.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A050801 |
| 90MW0091C | 90MW0091C-FD | 12/19/2000 | E504 | FD1 | 1,2-DIBROMOETHANE (EDB) | WG | 152.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A050802 |
| 90MW0091D | 90MW0091D- | 12/19/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 127.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A050803 |
| 90MW0091D | 90MW0091D- | 12/19/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 127.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A050803 |
| 90MW0091E | 90MW0091E- | 12/14/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 102.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A049701 |
| 90MW0091E | 90MW0091E- | 12/14/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 102.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A049701 |
| 90MW0091F | 90MW0091F- | 12/14/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 67.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A049702 |
| 90MW0091F | 90MW0091F- | 12/14/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 67.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A049702 |
| 90MW0100A | 90MW0100A-01 | 10/31/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 26.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A036701 |
| 90MW0100A | 90MW0100A-02 | 10/31/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 46.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A036702 |
| 90MW0100A | 90MW0100A-03 | 10/31/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 66.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A036801 |
| 90MW0100A | 90MW0100A-04 | 10/31/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 86.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A036802 |
| 90MW0100A | 90MW0100A-05 | 10/31/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 96.5 | 1.01 | 0.025 | 0.05 | µg/L | | MS-A036901 |
| 90MW0100A | 90MW0100A-05FD | 10/31/2000 | E504 | FD1 | 1,2-DIBROMOETHANE (EDB) | WA | 96.5 | 1.07 | 0.025 | 0.05 | µg/L | | MS-A036902 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0100A | 90MW0100A-06 | 10/31/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 106.5 | 0.357 | 0.01 | 0.02 | µg/L | | MS-A036903 |
| 90MW0100A | 90MW0100A-07 | 10/31/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 116.5 | 0.01 | 0.005 | 0.01 | µg/L | | MS-A037001 |
| 90MW0100A | 90MW0100A-08 | 10/31/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 126.5 | 0.382 | 0.01 | 0.02 | µg/L | | MS-A037002 |
| 90MW0100A | 90MW0100A-09 | 10/31/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 136.5 | 0.015 | 0.005 | 0.01 | µg/L | | MS-A037101 |
| 90MW0100A | 90MW0100A-10 | 10/31/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 146.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A037102 |
| 90MW0100A | 90MW0100A-11 | 11/1/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 156.5 | 0.006 | 0.005 | 0.01 | µg/L | J | MS-A037201 |
| 90MW0100A | 90MW0100A-12 | 11/1/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 166.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A037202 |
| 90MW0100A | 90MW0100A-13 | 11/1/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 176.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A037301 |
| 90MW0100A | 90MW0100A-14 | 11/1/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 186.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A037302 |
| 90MW0100A | 90MW0100A-15 | 11/1/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 196.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A037401 |
| 90MW0101A | 90MW0101A-01 | 11/7/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 15.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A038501 |
| 90MW0101A | 90MW0101A-02 | 11/7/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 25.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A038503 |
| 90MW0101A | 90MW0101A-03 | 11/7/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 35.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A038601 |
| 90MW0101A | 90MW0101A-03FD | 11/7/2000 | E504 | FD1 | 1,2-DIBROMOETHANE (EDB) | WA | 35.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A038603 |
| 90MW0101A | 90MW0101A-04 | 11/7/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 45.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A038605 |
| 90MW0101A | 90MW0101A-05 | 11/7/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 55.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A038701 |
| 90MW0101A | 90MW0101A-06 | 11/7/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 65.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A038703 |
| 90MW0101A | 90MW0101A-01 | 11/7/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 15.5 | ND | 0.228 | 1 | µg/L | U | MS-A038502 |
| 90MW0101A | 90MW0101A-01 | 11/7/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 15.5 | ND | 0.233 | 1 | µg/L | U | MS-A038502 |
| 90MW0101A | 90MW0101A-01 | 11/7/2000 | SW8260 | N1 | BENZENE | WA | 15.5 | ND | 0.354 | 1 | µg/L | U | MS-A038502 |
| 90MW0101A | 90MW0101A-01 | 11/7/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 15.5 | ND | 0.128 | 1 | µg/L | U | MS-A038502 |
| 90MW0101A | 90MW0101A-01 | 11/7/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 15.5 | ND | 0.157 | 1 | µg/L | U | MS-A038502 |
| 90MW0101A | 90MW0101A-01 | 11/7/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 15.5 | ND | 0.196 | 1 | µg/L | U | MS-A038502 |
| 90MW0101A | 90MW0101A-01 | 11/7/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 15.5 | ND | 0.53 | 1 | µg/L | U | MS-A038502 |
| 90MW0101A | 90MW0101A-01 | 11/7/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 15.5 | ND | 0.245 | 1 | µg/L | U | MS-A038502 |
| 90MW0101A | 90MW0101A-01 | 11/7/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 15.5 | ND | 0.195 | 1 | µg/L | U | MS-A038502 |
| 90MW0101A | 90MW0101A-01 | 11/7/2000 | SW8260 | N1 | TOLUENE | WA | 15.5 | ND | 0.21 | 1 | µg/L | U | MS-A038502 |
| 90MW0101A | 90MW0101A-01 | 11/7/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 15.5 | ND | 0.166 | 1 | µg/L | U | MS-A038502 |
| 90MW0101A | 90MW0101A-01 | 11/7/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 15.5 | ND | 0.205 | 1 | µg/L | U | MS-A038502 |
| 90MW0101A | 90MW0101A-02 | 11/7/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 25.5 | ND | 0.228 | 1 | µg/L | U | MS-A038504 |
| 90MW0101A | 90MW0101A-02 | 11/7/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 25.5 | ND | 0.233 | 1 | µg/L | U | MS-A038504 |
| 90MW0101A | 90MW0101A-02 | 11/7/2000 | SW8260 | N1 | BENZENE | WA | 25.5 | ND | 0.354 | 1 | µg/L | U | MS-A038504 |
| 90MW0101A | 90MW0101A-02 | 11/7/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 25.5 | ND | 0.128 | 1 | µg/L | U | MS-A038504 |
| 90MW0101A | 90MW0101A-02 | 11/7/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 25.5 | ND | 0.157 | 1 | µg/L | U | MS-A038504 |
| 90MW0101A | 90MW0101A-02 | 11/7/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 25.5 | ND | 0.196 | 1 | µg/L | U | MS-A038504 |
| 90MW0101A | 90MW0101A-02 | 11/7/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 25.5 | ND | 0.53 | 1 | µg/L | U | MS-A038504 |
| 90MW0101A | 90MW0101A-02 | 11/7/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 25.5 | ND | 0.245 | 1 | µg/L | U | MS-A038504 |
| 90MW0101A | 90MW0101A-02 | 11/7/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 25.5 | 0.465 | 0.195 | 1 | µg/L | J | MS-A038504 |
| 90MW0101A | 90MW0101A-02 | 11/7/2000 | SW8260 | N1 | TOLUENE | WA | 25.5 | ND | 0.21 | 1 | µg/L | U | MS-A038504 |
| 90MW0101A | 90MW0101A-02 | 11/7/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 25.5 | ND | 0.166 | 1 | µg/L | U | MS-A038504 |
| 90MW0101A | 90MW0101A-02 | 11/7/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 25.5 | ND | 0.205 | 1 | µg/L | U | MS-A038504 |
| 90MW0101A | 90MW0101A-03 | 11/7/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 35.5 | ND | 0.228 | 1 | µg/L | U | MS-A038602 |
| 90MW0101A | 90MW0101A-03FD | 11/7/2000 | SW8260 | FD1 | 1,1,1-TRICHLOROETHANE | WA | 35.5 | ND | 0.228 | 1 | µg/L | U | MS-A038604 |
| 90MW0101A | 90MW0101A-03 | 11/7/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 35.5 | ND | 0.233 | 1 | µg/L | U | MS-A038602 |
| 90MW0101A | 90MW0101A-03FD | 11/7/2000 | SW8260 | FD1 | 1,1-DICHLOROETHENE | WA | 35.5 | ND | 0.233 | 1 | µg/L | U | MS-A038604 |
| 90MW0101A | 90MW0101A-03 | 11/7/2000 | SW8260 | N1 | BENZENE | WA | 35.5 | ND | 0.354 | 1 | µg/L | U | MS-A038602 |
| 90MW0101A | 90MW0101A-03FD | 11/7/2000 | SW8260 | FD1 | BENZENE | WA | 35.5 | ND | 0.354 | 1 | µg/L | U | MS-A038604 |
| 90MW0101A | 90MW0101A-03 | 11/7/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 35.5 | ND | 0.128 | 1 | µg/L | U | MS-A038602 |
| 90MW0101A | 90MW0101A-03FD | 11/7/2000 | SW8260 | FD1 | CARBON TETRACHLORIDE | WA | 35.5 | ND | 0.128 | 1 | µg/L | U | MS-A038604 |
| 90MW0101A | 90MW0101A-03 | 11/7/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 35.5 | ND | 0.157 | 1 | µg/L | U | MS-A038602 |

## Appendix D
## Analytical Laboratory Results
## October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0101A | 90MW0101A-03FD | 11/7/2000 | SW8260 | FD1 | CIS-1,2-DICHLOROETHENE | WA | 35.5 | ND | 0.157 | 1 | µg/L | U | MS-A038604 |
| 90MW0101A | 90MW0101A-03 | 11/7/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 35.5 | ND | 0.196 | 1 | µg/L | U | MS-A038602 |
| 90MW0101A | 90MW0101A-03FD | 11/7/2000 | SW8260 | FD1 | ETHYLBENZENE | WA | 35.5 | ND | 0.196 | 1 | µg/L | U | MS-A038604 |
| 90MW0101A | 90MW0101A-03 | 11/7/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 35.5 | ND | 0.53 | 1 | µg/L | U | MS-A038602 |
| 90MW0101A | 90MW0101A-03FD | 11/7/2000 | SW8260 | FD1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 35.5 | ND | 0.53 | 1 | µg/L | U | MS-A038604 |
| 90MW0101A | 90MW0101A-03 | 11/7/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 35.5 | ND | 0.245 | 1 | µg/L | U | MS-A038602 |
| 90MW0101A | 90MW0101A-03FD | 11/7/2000 | SW8260 | FD1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 35.5 | ND | 0.245 | 1 | µg/L | U | MS-A038604 |
| 90MW0101A | 90MW0101A-03 | 11/7/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 35.5 | ND | 0.195 | 1 | µg/L | U | MS-A038602 |
| 90MW0101A | 90MW0101A-03FD | 11/7/2000 | SW8260 | FD1 | TETRACHLOROETHENE(PCE) | WA | 35.5 | ND | 0.195 | 1 | µg/L | U | MS-A038604 |
| 90MW0101A | 90MW0101A-03 | 11/7/2000 | SW8260 | N1 | TOLUENE | WA | 35.5 | ND | 0.21 | 1 | µg/L | U | MS-A038602 |
| 90MW0101A | 90MW0101A-03FD | 11/7/2000 | SW8260 | FD1 | TOLUENE | WA | 35.5 | ND | 0.21 | 1 | µg/L | U | MS-A038604 |
| 90MW0101A | 90MW0101A-03 | 11/7/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 35.5 | ND | 0.166 | 1 | µg/L | U | MS-A038602 |
| 90MW0101A | 90MW0101A-03FD | 11/7/2000 | SW8260 | FD1 | TRANS-1,2-DICHLOROETHENE | WA | 35.5 | ND | 0.166 | 1 | µg/L | U | MS-A038604 |
| 90MW0101A | 90MW0101A-03 | 11/7/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 35.5 | ND | 0.205 | 1 | µg/L | U | MS-A038602 |
| 90MW0101A | 90MW0101A-03FD | 11/7/2000 | SW8260 | FD1 | TRICHLOROETHENE(TCE) | WA | 35.5 | ND | 0.205 | 1 | µg/L | U | MS-A038604 |
| 90MW0101A | 90MW0101A-04 | 11/7/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 45.5 | ND | 0.228 | 1 | µg/L | U | MS-A038606 |
| 90MW0101A | 90MW0101A-04 | 11/7/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 45.5 | ND | 0.233 | 1 | µg/L | U | MS-A038606 |
| 90MW0101A | 90MW0101A-04 | 11/7/2000 | SW8260 | N1 | BENZENE | WA | 45.5 | ND | 0.354 | 1 | µg/L | U | MS-A038606 |
| 90MW0101A | 90MW0101A-04 | 11/7/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 45.5 | ND | 0.128 | 1 | µg/L | U | MS-A038606 |
| 90MW0101A | 90MW0101A-04 | 11/7/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 45.5 | ND | 0.157 | 1 | µg/L | U | MS-A038606 |
| 90MW0101A | 90MW0101A-04 | 11/7/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 45.5 | ND | 0.196 | 1 | µg/L | U | MS-A038606 |
| 90MW0101A | 90MW0101A-04 | 11/7/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 45.5 | ND | 0.53 | 1 | µg/L | U | MS-A038606 |
| 90MW0101A | 90MW0101A-04 | 11/7/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 45.5 | ND | 0.245 | 1 | µg/L | U | MS-A038606 |
| 90MW0101A | 90MW0101A-04 | 11/7/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 45.5 | ND | 0.195 | 1 | µg/L | U | MS-A038606 |
| 90MW0101A | 90MW0101A-04 | 11/7/2000 | SW8260 | N1 | TOLUENE | WA | 45.5 | ND | 0.21 | 1 | µg/L | U | MS-A038606 |
| 90MW0101A | 90MW0101A-04 | 11/7/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 45.5 | ND | 0.166 | 1 | µg/L | U | MS-A038606 |
| 90MW0101A | 90MW0101A-04 | 11/7/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 45.5 | ND | 0.205 | 1 | µg/L | U | MS-A038606 |
| 90MW0101A | 90MW0101A-05 | 11/7/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 55.5 | ND | 0.228 | 1 | µg/L | U | MS-A038702 |
| 90MW0101A | 90MW0101A-05 | 11/7/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 55.5 | ND | 0.233 | 1 | µg/L | U | MS-A038702 |
| 90MW0101A | 90MW0101A-05 | 11/7/2000 | SW8260 | N1 | BENZENE | WA | 55.5 | ND | 0.354 | 1 | µg/L | U | MS-A038702 |
| 90MW0101A | 90MW0101A-05 | 11/7/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 55.5 | ND | 0.128 | 1 | µg/L | U | MS-A038702 |
| 90MW0101A | 90MW0101A-05 | 11/7/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 55.5 | ND | 0.157 | 1 | µg/L | U | MS-A038702 |
| 90MW0101A | 90MW0101A-05 | 11/7/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 55.5 | ND | 0.196 | 1 | µg/L | U | MS-A038702 |
| 90MW0101A | 90MW0101A-05 | 11/7/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 55.5 | ND | 0.53 | 1 | µg/L | U | MS-A038702 |
| 90MW0101A | 90MW0101A-05 | 11/7/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 55.5 | ND | 0.245 | 1 | µg/L | U | MS-A038702 |
| 90MW0101A | 90MW0101A-05 | 11/7/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 55.5 | ND | 0.195 | 1 | µg/L | U | MS-A038702 |
| 90MW0101A | 90MW0101A-05 | 11/7/2000 | SW8260 | N1 | TOLUENE | WA | 55.5 | ND | 0.21 | 1 | µg/L | U | MS-A038702 |
| 90MW0101A | 90MW0101A-05 | 11/7/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 55.5 | ND | 0.166 | 1 | µg/L | U | MS-A038702 |
| 90MW0101A | 90MW0101A-05 | 11/7/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 55.5 | ND | 0.205 | 1 | µg/L | U | MS-A038702 |
| 90MW0101A | 90MW0101A-06 | 11/7/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 65.5 | ND | 0.228 | 1 | µg/L | U | MS-A038704 |
| 90MW0101A | 90MW0101A-06 | 11/7/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 65.5 | ND | 0.233 | 1 | µg/L | U | MS-A038704 |
| 90MW0101A | 90MW0101A-06 | 11/7/2000 | SW8260 | N1 | BENZENE | WA | 65.5 | ND | 0.354 | 1 | µg/L | U | MS-A038704 |
| 90MW0101A | 90MW0101A-06 | 11/7/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 65.5 | ND | 0.128 | 1 | µg/L | U | MS-A038704 |
| 90MW0101A | 90MW0101A-06 | 11/7/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 65.5 | ND | 0.157 | 1 | µg/L | U | MS-A038704 |
| 90MW0101A | 90MW0101A-06 | 11/7/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 65.5 | ND | 0.196 | 1 | µg/L | U | MS-A038704 |
| 90MW0101A | 90MW0101A-06 | 11/7/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 65.5 | ND | 0.53 | 1 | µg/L | U | MS-A038704 |
| 90MW0101A | 90MW0101A-06 | 11/7/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 65.5 | ND | 0.245 | 1 | µg/L | U | MS-A038704 |
| 90MW0101A | 90MW0101A-06 | 11/7/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 65.5 | ND | 0.195 | 1 | µg/L | U | MS-A038704 |
| 90MW0101A | 90MW0101A-06 | 11/7/2000 | SW8260 | N1 | TOLUENE | WA | 65.5 | ND | 0.21 | 1 | µg/L | U | MS-A038704 |
| 90MW0101A | 90MW0101A-06 | 11/7/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 65.5 | ND | 0.166 | 1 | µg/L | U | MS-A038704 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0101A | 90MW0101A-06 | 11/7/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 65.5 | ND | 0.205 | 1 | µg/L | U | MS-A038704 |
| 90MW0101A | 90MW0101A-07 | 11/8/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 75.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A038801 |
| 90MW0101A | 90MW0101A-08 | 11/8/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 85.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A038803 |
| 90MW0101A | 90MW0101A-09 | 11/8/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 95.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A038901 |
| 90MW0101A | 90MW0101A-10 | 11/8/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 105.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A038903 |
| 90MW0101A | 90MW0101A-11 | 11/8/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 115.5 | 0.007 | 0.005 | 0.01 | µg/L | J | MS-A039001 |
| 90MW0101A | 90MW0101A-12 | 11/8/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 125.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A039003 |
| 90MW0101A | 90MW0101A-13 | 11/8/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 135.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A039101 |
| 90MW0101A | 90MW0101A-14 | 11/8/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 145.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A039103 |
| 90MW0101A | 90MW0101A-07 | 11/8/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 75.5 | ND | 0.228 | 1 | µg/L | U | MS-A038802 |
| 90MW0101A | 90MW0101A-07 | 11/8/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 75.5 | ND | 0.233 | 1 | µg/L | U | MS-A038802 |
| 90MW0101A | 90MW0101A-07 | 11/8/2000 | SW8260 | N1 | BENZENE | WA | 75.5 | ND | 0.354 | 1 | µg/L | U | MS-A038802 |
| 90MW0101A | 90MW0101A-07 | 11/8/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 75.5 | ND | 0.128 | 1 | µg/L | U | MS-A038802 |
| 90MW0101A | 90MW0101A-07 | 11/8/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 75.5 | ND | 0.157 | 1 | µg/L | U | MS-A038802 |
| 90MW0101A | 90MW0101A-07 | 11/8/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 75.5 | ND | 0.196 | 1 | µg/L | U | MS-A038802 |
| 90MW0101A | 90MW0101A-07 | 11/8/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 75.5 | ND | 0.53 | 1 | µg/L | U | MS-A038802 |
| 90MW0101A | 90MW0101A-07 | 11/8/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 75.5 | ND | 0.245 | 1 | µg/L | U | MS-A038802 |
| 90MW0101A | 90MW0101A-07 | 11/8/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 75.5 | ND | 0.195 | 1 | µg/L | U | MS-A038802 |
| 90MW0101A | 90MW0101A-07 | 11/8/2000 | SW8260 | N1 | TOLUENE | WA | 75.5 | ND | 0.21 | 1 | µg/L | U | MS-A038802 |
| 90MW0101A | 90MW0101A-07 | 11/8/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 75.5 | ND | 0.166 | 1 | µg/L | U | MS-A038802 |
| 90MW0101A | 90MW0101A-07 | 11/8/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 75.5 | ND | 0.205 | 1 | µg/L | U | MS-A038802 |
| 90MW0101A | 90MW0101A-08 | 11/8/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 85.5 | ND | 0.228 | 1 | µg/L | U | MS-A038804 |
| 90MW0101A | 90MW0101A-08 | 11/8/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 85.5 | ND | 0.233 | 1 | µg/L | U | MS-A038804 |
| 90MW0101A | 90MW0101A-08 | 11/8/2000 | SW8260 | N1 | BENZENE | WA | 85.5 | ND | 0.354 | 1 | µg/L | U | MS-A038804 |
| 90MW0101A | 90MW0101A-08 | 11/8/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 85.5 | ND | 0.128 | 1 | µg/L | U | MS-A038804 |
| 90MW0101A | 90MW0101A-08 | 11/8/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 85.5 | ND | 0.157 | 1 | µg/L | U | MS-A038804 |
| 90MW0101A | 90MW0101A-08 | 11/8/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 85.5 | ND | 0.196 | 1 | µg/L | U | MS-A038804 |
| 90MW0101A | 90MW0101A-08 | 11/8/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 85.5 | ND | 0.53 | 1 | µg/L | U | MS-A038804 |
| 90MW0101A | 90MW0101A-08 | 11/8/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 85.5 | ND | 0.245 | 1 | µg/L | U | MS-A038804 |
| 90MW0101A | 90MW0101A-08 | 11/8/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 85.5 | ND | 0.195 | 1 | µg/L | U | MS-A038804 |
| 90MW0101A | 90MW0101A-08 | 11/8/2000 | SW8260 | N1 | TOLUENE | WA | 85.5 | ND | 0.21 | 1 | µg/L | U | MS-A038804 |
| 90MW0101A | 90MW0101A-08 | 11/8/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 85.5 | ND | 0.166 | 1 | µg/L | U | MS-A038804 |
| 90MW0101A | 90MW0101A-08 | 11/8/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 85.5 | ND | 0.205 | 1 | µg/L | U | MS-A038804 |
| 90MW0101A | 90MW0101A-09 | 11/8/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 95.5 | ND | 0.228 | 1 | µg/L | U | MS-A038902 |
| 90MW0101A | 90MW0101A-09 | 11/8/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 95.5 | ND | 0.233 | 1 | µg/L | U | MS-A038902 |
| 90MW0101A | 90MW0101A-09 | 11/8/2000 | SW8260 | N1 | BENZENE | WA | 95.5 | ND | 0.354 | 1 | µg/L | U | MS-A038902 |
| 90MW0101A | 90MW0101A-09 | 11/8/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 95.5 | ND | 0.128 | 1 | µg/L | U | MS-A038902 |
| 90MW0101A | 90MW0101A-09 | 11/8/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 95.5 | ND | 0.157 | 1 | µg/L | U | MS-A038902 |
| 90MW0101A | 90MW0101A-09 | 11/8/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 95.5 | ND | 0.196 | 1 | µg/L | U | MS-A038902 |
| 90MW0101A | 90MW0101A-09 | 11/8/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 95.5 | ND | 0.53 | 1 | µg/L | U | MS-A038902 |
| 90MW0101A | 90MW0101A-09 | 11/8/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 95.5 | ND | 0.245 | 1 | µg/L | U | MS-A038902 |
| 90MW0101A | 90MW0101A-09 | 11/8/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 95.5 | ND | 0.195 | 1 | µg/L | U | MS-A038902 |
| 90MW0101A | 90MW0101A-09 | 11/8/2000 | SW8260 | N1 | TOLUENE | WA | 95.5 | ND | 0.21 | 1 | µg/L | U | MS-A038902 |
| 90MW0101A | 90MW0101A-09 | 11/8/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 95.5 | ND | 0.166 | 1 | µg/L | U | MS-A038902 |
| 90MW0101A | 90MW0101A-09 | 11/8/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 95.5 | ND | 0.205 | 1 | µg/L | U | MS-A038902 |
| 90MW0101A | 90MW0101A-10 | 11/8/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 105.5 | ND | 0.228 | 1 | µg/L | U | MS-A038904 |
| 90MW0101A | 90MW0101A-10 | 11/8/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 105.5 | ND | 0.233 | 1 | µg/L | U | MS-A038904 |
| 90MW0101A | 90MW0101A-10 | 11/8/2000 | SW8260 | N1 | BENZENE | WA | 105.5 | ND | 0.354 | 1 | µg/L | U | MS-A038904 |
| 90MW0101A | 90MW0101A-10 | 11/8/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 105.5 | ND | 0.128 | 1 | µg/L | U | MS-A038904 |
| 90MW0101A | 90MW0101A-10 | 11/8/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 105.5 | ND | 0.157 | 1 | µg/L | U | MS-A038904 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0101A | 90MW0101A-10 | 11/8/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 105.5 | ND | 0.196 | 1 | µg/L | U | MS-A038904 |
| 90MW0101A | 90MW0101A-10 | 11/8/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 105.5 | ND | 0.53 | 1 | µg/L | U | MS-A038904 |
| 90MW0101A | 90MW0101A-10 | 11/8/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 105.5 | ND | 0.245 | 1 | µg/L | U | MS-A038904 |
| 90MW0101A | 90MW0101A-10 | 11/8/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 105.5 | ND | 0.195 | 1 | µg/L | U | MS-A038904 |
| 90MW0101A | 90MW0101A-10 | 11/8/2000 | SW8260 | N1 | TOLUENE | WA | 105.5 | ND | 0.21 | 1 | µg/L | U | MS-A038904 |
| 90MW0101A | 90MW0101A-10 | 11/8/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 105.5 | ND | 0.166 | 1 | µg/L | U | MS-A038904 |
| 90MW0101A | 90MW0101A-10 | 11/8/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 105.5 | ND | 0.205 | 1 | µg/L | U | MS-A038904 |
| 90MW0101A | 90MW0101A-11 | 11/8/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 115.5 | ND | 0.228 | 1 | µg/L | U | MS-A039002 |
| 90MW0101A | 90MW0101A-11 | 11/8/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 115.5 | ND | 0.233 | 1 | µg/L | U | MS-A039002 |
| 90MW0101A | 90MW0101A-11 | 11/8/2000 | SW8260 | N1 | BENZENE | WA | 115.5 | ND | 0.354 | 1 | µg/L | U | MS-A039002 |
| 90MW0101A | 90MW0101A-11 | 11/8/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 115.5 | ND | 0.128 | 1 | µg/L | U | MS-A039002 |
| 90MW0101A | 90MW0101A-11 | 11/8/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 115.5 | ND | 0.157 | 1 | µg/L | U | MS-A039002 |
| 90MW0101A | 90MW0101A-11 | 11/8/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 115.5 | ND | 0.196 | 1 | µg/L | U | MS-A039002 |
| 90MW0101A | 90MW0101A-11 | 11/8/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 115.5 | ND | 0.53 | 1 | µg/L | U | MS-A039002 |
| 90MW0101A | 90MW0101A-11 | 11/8/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 115.5 | ND | 0.245 | 1 | µg/L | U | MS-A039002 |
| 90MW0101A | 90MW0101A-11 | 11/8/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 115.5 | ND | 0.195 | 1 | µg/L | U | MS-A039002 |
| 90MW0101A | 90MW0101A-11 | 11/8/2000 | SW8260 | N1 | TOLUENE | WA | 115.5 | ND | 0.21 | 1 | µg/L | U | MS-A039002 |
| 90MW0101A | 90MW0101A-11 | 11/8/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 115.5 | ND | 0.166 | 1 | µg/L | U | MS-A039002 |
| 90MW0101A | 90MW0101A-11 | 11/8/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 115.5 | ND | 0.205 | 1 | µg/L | U | MS-A039002 |
| 90MW0101A | 90MW0101A-12 | 11/8/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 125.5 | ND | 0.228 | 1 | µg/L | U | MS-A039004 |
| 90MW0101A | 90MW0101A-12 | 11/8/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 125.5 | ND | 0.233 | 1 | µg/L | U | MS-A039004 |
| 90MW0101A | 90MW0101A-12 | 11/8/2000 | SW8260 | N1 | BENZENE | WA | 125.5 | ND | 0.354 | 1 | µg/L | U | MS-A039004 |
| 90MW0101A | 90MW0101A-12 | 11/8/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 125.5 | ND | 0.128 | 1 | µg/L | U | MS-A039004 |
| 90MW0101A | 90MW0101A-12 | 11/8/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 125.5 | ND | 0.157 | 1 | µg/L | U | MS-A039004 |
| 90MW0101A | 90MW0101A-12 | 11/8/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 125.5 | ND | 0.196 | 1 | µg/L | U | MS-A039004 |
| 90MW0101A | 90MW0101A-12 | 11/8/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 125.5 | ND | 0.53 | 1 | µg/L | U | MS-A039004 |
| 90MW0101A | 90MW0101A-12 | 11/8/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 125.5 | ND | 0.245 | 1 | µg/L | U | MS-A039004 |
| 90MW0101A | 90MW0101A-12 | 11/8/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 125.5 | ND | 0.195 | 1 | µg/L | U | MS-A039004 |
| 90MW0101A | 90MW0101A-12 | 11/8/2000 | SW8260 | N1 | TOLUENE | WA | 125.5 | ND | 0.21 | 1 | µg/L | U | MS-A039004 |
| 90MW0101A | 90MW0101A-12 | 11/8/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 125.5 | ND | 0.166 | 1 | µg/L | U | MS-A039004 |
| 90MW0101A | 90MW0101A-12 | 11/8/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 125.5 | ND | 0.205 | 1 | µg/L | U | MS-A039004 |
| 90MW0101A | 90MW0101A-13 | 11/8/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 135.5 | ND | 0.228 | 1 | µg/L | U | MS-A039102 |
| 90MW0101A | 90MW0101A-13 | 11/8/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 135.5 | ND | 0.233 | 1 | µg/L | U | MS-A039102 |
| 90MW0101A | 90MW0101A-13 | 11/8/2000 | SW8260 | N1 | BENZENE | WA | 135.5 | ND | 0.354 | 1 | µg/L | U | MS-A039102 |
| 90MW0101A | 90MW0101A-13 | 11/8/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 135.5 | ND | 0.128 | 1 | µg/L | U | MS-A039102 |
| 90MW0101A | 90MW0101A-13 | 11/8/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 135.5 | ND | 0.157 | 1 | µg/L | U | MS-A039102 |
| 90MW0101A | 90MW0101A-13 | 11/8/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 135.5 | ND | 0.196 | 1 | µg/L | U | MS-A039102 |
| 90MW0101A | 90MW0101A-13 | 11/8/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 135.5 | ND | 0.53 | 1 | µg/L | U | MS-A039102 |
| 90MW0101A | 90MW0101A-13 | 11/8/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 135.5 | ND | 0.245 | 1 | µg/L | U | MS-A039102 |
| 90MW0101A | 90MW0101A-13 | 11/8/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 135.5 | ND | 0.195 | 1 | µg/L | U | MS-A039102 |
| 90MW0101A | 90MW0101A-13 | 11/8/2000 | SW8260 | N1 | TOLUENE | WA | 135.5 | ND | 0.21 | 1 | µg/L | U | MS-A039102 |
| 90MW0101A | 90MW0101A-13 | 11/8/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 135.5 | ND | 0.166 | 1 | µg/L | U | MS-A039102 |
| 90MW0101A | 90MW0101A-13 | 11/8/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 135.5 | ND | 0.205 | 1 | µg/L | U | MS-A039102 |
| 90MW0101A | 90MW0101A-14 | 11/8/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 145.5 | ND | 0.228 | 1 | µg/L | U | MS-A039104 |
| 90MW0101A | 90MW0101A-14 | 11/8/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 145.5 | ND | 0.233 | 1 | µg/L | U | MS-A039104 |
| 90MW0101A | 90MW0101A-14 | 11/8/2000 | SW8260 | N1 | BENZENE | WA | 145.5 | ND | 0.354 | 1 | µg/L | U | MS-A039104 |
| 90MW0101A | 90MW0101A-14 | 11/8/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 145.5 | ND | 0.128 | 1 | µg/L | U | MS-A039104 |
| 90MW0101A | 90MW0101A-14 | 11/8/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 145.5 | ND | 0.157 | 1 | µg/L | U | MS-A039104 |
| 90MW0101A | 90MW0101A-14 | 11/8/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 145.5 | ND | 0.196 | 1 | µg/L | U | MS-A039104 |
| 90MW0101A | 90MW0101A-14 | 11/8/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 145.5 | ND | 0.53 | 1 | µg/L | U | MS-A039104 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0101A | 90MW0101A-14 | 11/8/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 145.5 | ND | 0.245 | 1 | µg/L | U | MS-A039104 |
| 90MW0101A | 90MW0101A-14 | 11/8/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 145.5 | ND | 0.195 | 1 | µg/L | U | MS-A039104 |
| 90MW0101A | 90MW0101A-14 | 11/8/2000 | SW8260 | N1 | TOLUENE | WA | 145.5 | ND | 0.21 | 1 | µg/L | U | MS-A039104 |
| 90MW0101A | 90MW0101A-14 | 11/8/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 145.5 | ND | 0.166 | 1 | µg/L | U | MS-A039104 |
| 90MW0101A | 90MW0101A-14 | 11/8/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 145.5 | ND | 0.205 | 1 | µg/L | U | MS-A039104 |
| 90MW0102A | 90MW0102A-01 | 11/10/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 15.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A040001 |
| 90MW0102A | 90MW0102A-02 | 11/10/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 25.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A040003 |
| 90MW0102A | 90MW0102A-03 | 11/10/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 35.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A040101 |
| 90MW0102A | 90MW0102A-03FD | 11/10/2000 | E504 | FD1 | 1,2-DIBROMOETHANE (EDB) | WA | 35.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A040103 |
| 90MW0102A | 90MW0102A-04 | 11/10/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 45.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A040105 |
| 90MW0102A | 90MW0102A-01 | 11/10/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 15.5 | ND | 0.228 | 1 | µg/L | U | MS-A040002 |
| 90MW0102A | 90MW0102A-01 | 11/10/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 15.5 | ND | 0.233 | 1 | µg/L | U | MS-A040002 |
| 90MW0102A | 90MW0102A-01 | 11/10/2000 | SW8260 | N1 | BENZENE | WA | 15.5 | ND | 0.354 | 1 | µg/L | U | MS-A040002 |
| 90MW0102A | 90MW0102A-01 | 11/10/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 15.5 | ND | 0.128 | 1 | µg/L | U | MS-A040002 |
| 90MW0102A | 90MW0102A-01 | 11/10/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 15.5 | ND | 0.157 | 1 | µg/L | U | MS-A040002 |
| 90MW0102A | 90MW0102A-01 | 11/10/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 15.5 | ND | 0.196 | 1 | µg/L | U | MS-A040002 |
| 90MW0102A | 90MW0102A-01 | 11/10/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 15.5 | ND | 0.53 | 1 | µg/L | U | MS-A040002 |
| 90MW0102A | 90MW0102A-01 | 11/10/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 15.5 | ND | 0.245 | 1 | µg/L | U | MS-A040002 |
| 90MW0102A | 90MW0102A-01 | 11/10/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 15.5 | ND | 0.195 | 1 | µg/L | U | MS-A040002 |
| 90MW0102A | 90MW0102A-01 | 11/10/2000 | SW8260 | N1 | TOLUENE | WA | 15.5 | ND | 0.21 | 1 | µg/L | U | MS-A040002 |
| 90MW0102A | 90MW0102A-01 | 11/10/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 15.5 | ND | 0.166 | 1 | µg/L | U | MS-A040002 |
| 90MW0102A | 90MW0102A-01 | 11/10/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 15.5 | ND | 0.205 | 1 | µg/L | U | MS-A040002 |
| 90MW0102A | 90MW0102A-02 | 11/10/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 25.5 | ND | 0.228 | 1 | µg/L | U | MS-A040004 |
| 90MW0102A | 90MW0102A-02 | 11/10/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 25.5 | ND | 0.233 | 1 | µg/L | U | MS-A040004 |
| 90MW0102A | 90MW0102A-02 | 11/10/2000 | SW8260 | N1 | BENZENE | WA | 25.5 | ND | 0.354 | 1 | µg/L | U | MS-A040004 |
| 90MW0102A | 90MW0102A-02 | 11/10/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 25.5 | ND | 0.128 | 1 | µg/L | U | MS-A040004 |
| 90MW0102A | 90MW0102A-02 | 11/10/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 25.5 | ND | 0.157 | 1 | µg/L | U | MS-A040004 |
| 90MW0102A | 90MW0102A-02 | 11/10/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 25.5 | ND | 0.196 | 1 | µg/L | U | MS-A040004 |
| 90MW0102A | 90MW0102A-02 | 11/10/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 25.5 | ND | 0.53 | 1 | µg/L | U | MS-A040004 |
| 90MW0102A | 90MW0102A-02 | 11/10/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 25.5 | ND | 0.245 | 1 | µg/L | U | MS-A040004 |
| 90MW0102A | 90MW0102A-02 | 11/10/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 25.5 | ND | 0.195 | 1 | µg/L | U | MS-A040004 |
| 90MW0102A | 90MW0102A-02 | 11/10/2000 | SW8260 | N1 | TOLUENE | WA | 25.5 | ND | 0.21 | 1 | µg/L | U | MS-A040004 |
| 90MW0102A | 90MW0102A-02 | 11/10/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 25.5 | ND | 0.166 | 1 | µg/L | U | MS-A040004 |
| 90MW0102A | 90MW0102A-02 | 11/10/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 25.5 | ND | 0.205 | 1 | µg/L | U | MS-A040004 |
| 90MW0102A | 90MW0102A-03 | 11/10/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 35.5 | ND | 0.228 | 1 | µg/L | U | MS-A040102 |
| 90MW0102A | 90MW0102A-03FD | 11/10/2000 | SW8260 | FD1 | 1,1,1-TRICHLOROETHANE | WA | 35.5 | ND | 0.228 | 1 | µg/L | U | MS-A040104 |
| 90MW0102A | 90MW0102A-03 | 11/10/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 35.5 | ND | 0.233 | 1 | µg/L | U | MS-A040102 |
| 90MW0102A | 90MW0102A-03FD | 11/10/2000 | SW8260 | FD1 | 1,1-DICHLOROETHENE | WA | 35.5 | ND | 0.233 | 1 | µg/L | U | MS-A040104 |
| 90MW0102A | 90MW0102A-03 | 11/10/2000 | SW8260 | N1 | BENZENE | WA | 35.5 | ND | 0.354 | 1 | µg/L | U | MS-A040102 |
| 90MW0102A | 90MW0102A-03FD | 11/10/2000 | SW8260 | FD1 | BENZENE | WA | 35.5 | ND | 0.354 | 1 | µg/L | U | MS-A040104 |
| 90MW0102A | 90MW0102A-03 | 11/10/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 35.5 | ND | 0.128 | 1 | µg/L | U | MS-A040102 |
| 90MW0102A | 90MW0102A-03FD | 11/10/2000 | SW8260 | FD1 | CARBON TETRACHLORIDE | WA | 35.5 | ND | 0.128 | 1 | µg/L | U | MS-A040104 |
| 90MW0102A | 90MW0102A-03 | 11/10/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 35.5 | ND | 0.157 | 1 | µg/L | U | MS-A040102 |
| 90MW0102A | 90MW0102A-03FD | 11/10/2000 | SW8260 | FD1 | CIS-1,2-DICHLOROETHENE | WA | 35.5 | ND | 0.157 | 1 | µg/L | U | MS-A040104 |
| 90MW0102A | 90MW0102A-03 | 11/10/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 35.5 | ND | 0.196 | 1 | µg/L | U | MS-A040102 |
| 90MW0102A | 90MW0102A-03FD | 11/10/2000 | SW8260 | FD1 | ETHYLBENZENE | WA | 35.5 | ND | 0.196 | 1 | µg/L | U | MS-A040104 |
| 90MW0102A | 90MW0102A-03 | 11/10/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 35.5 | ND | 0.53 | 1 | µg/L | U | MS-A040102 |
| 90MW0102A | 90MW0102A-03FD | 11/10/2000 | SW8260 | FD1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 35.5 | ND | 0.53 | 1 | µg/L | U | MS-A040104 |
| 90MW0102A | 90MW0102A-03 | 11/10/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 35.5 | ND | 0.245 | 1 | µg/L | U | MS-A040102 |
| 90MW0102A | 90MW0102A-03FD | 11/10/2000 | SW8260 | FD1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 35.5 | ND | 0.245 | 1 | µg/L | U | MS-A040104 |

## Appendix D
## Analytical Laboratory Results
## October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0102A | 90MW0102A-03 | 11/10/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 35.5 | ND | 0.195 | 1 | µg/L | U | MS-A040102 |
| 90MW0102A | 90MW0102A-03FD | 11/10/2000 | SW8260 | FD1 | TETRACHLOROETHENE(PCE) | WA | 35.5 | ND | 0.195 | 1 | µg/L | U | MS-A040104 |
| 90MW0102A | 90MW0102A-03 | 11/10/2000 | SW8260 | N1 | TOLUENE | WA | 35.5 | ND | 0.21 | 1 | µg/L | U | MS-A040102 |
| 90MW0102A | 90MW0102A-03FD | 11/10/2000 | SW8260 | FD1 | TOLUENE | WA | 35.5 | ND | 0.21 | 1 | µg/L | U | MS-A040104 |
| 90MW0102A | 90MW0102A-03 | 11/10/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 35.5 | ND | 0.166 | 1 | µg/L | U | MS-A040102 |
| 90MW0102A | 90MW0102A-03FD | 11/10/2000 | SW8260 | FD1 | TRANS-1,2-DICHLOROETHENE | WA | 35.5 | ND | 0.166 | 1 | µg/L | U | MS-A040104 |
| 90MW0102A | 90MW0102A-03 | 11/10/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 35.5 | ND | 0.205 | 1 | µg/L | U | MS-A040102 |
| 90MW0102A | 90MW0102A-03FD | 11/10/2000 | SW8260 | FD1 | TRICHLOROETHENE(TCE) | WA | 35.5 | ND | 0.205 | 1 | µg/L | U | MS-A040104 |
| 90MW0102A | 90MW0102A-04 | 11/10/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 45.5 | ND | 0.228 | 1 | µg/L | U | MS-A040106 |
| 90MW0102A | 90MW0102A-04 | 11/10/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 45.5 | ND | 0.233 | 1 | µg/L | U | MS-A040106 |
| 90MW0102A | 90MW0102A-04 | 11/10/2000 | SW8260 | N1 | BENZENE | WA | 45.5 | ND | 0.354 | 1 | µg/L | U | MS-A040106 |
| 90MW0102A | 90MW0102A-04 | 11/10/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 45.5 | ND | 0.128 | 1 | µg/L | U | MS-A040106 |
| 90MW0102A | 90MW0102A-04 | 11/10/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 45.5 | ND | 0.157 | 1 | µg/L | U | MS-A040106 |
| 90MW0102A | 90MW0102A-04 | 11/10/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 45.5 | ND | 0.196 | 1 | µg/L | U | MS-A040106 |
| 90MW0102A | 90MW0102A-04 | 11/10/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 45.5 | ND | 0.53 | 1 | µg/L | U | MS-A040106 |
| 90MW0102A | 90MW0102A-04 | 11/10/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 45.5 | ND | 0.245 | 1 | µg/L | U | MS-A040106 |
| 90MW0102A | 90MW0102A-04 | 11/10/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 45.5 | ND | 0.195 | 1 | µg/L | U | MS-A040106 |
| 90MW0102A | 90MW0102A-04 | 11/10/2000 | SW8260 | N1 | TOLUENE | WA | 45.5 | ND | 0.21 | 1 | µg/L | U | MS-A040106 |
| 90MW0102A | 90MW0102A-04 | 11/10/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 45.5 | ND | 0.166 | 1 | µg/L | U | MS-A040106 |
| 90MW0102A | 90MW0102A-04 | 11/10/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 45.5 | ND | 0.205 | 1 | µg/L | U | MS-A040106 |
| 90MW0102A | 90MW0102A-05 | 11/13/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 65.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A040201 |
| 90MW0102A | 90MW0102A-06 | 11/13/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 75.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A040203 |
| 90MW0102A | 90MW0102A-07 | 11/13/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 85.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A040301 |
| 90MW0102A | 90MW0102A-08 | 11/13/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 95.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A040303 |
| 90MW0102A | 90MW0102A-09 | 11/13/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 105.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A040401 |
| 90MW0102A | 90MW0102A-10 | 11/13/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 115.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A040403 |
| 90MW0102A | 90MW0102A-11 | 11/13/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 125.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A040501 |
| 90MW0102A | 90MW0102A-12 | 11/13/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 135.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A040503 |
| 90MW0102A | 90MW0102A-13 | 11/13/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 145.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A040601 |
| 90MW0102A | 90MW0102A-05 | 11/13/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 65.5 | ND | 0.228 | 1 | µg/L | U | MS-A040202 |
| 90MW0102A | 90MW0102A-05 | 11/13/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 65.5 | ND | 0.233 | 1 | µg/L | U | MS-A040202 |
| 90MW0102A | 90MW0102A-05 | 11/13/2000 | SW8260 | N1 | BENZENE | WA | 65.5 | ND | 0.354 | 1 | µg/L | U | MS-A040202 |
| 90MW0102A | 90MW0102A-05 | 11/13/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 65.5 | ND | 0.128 | 1 | µg/L | U | MS-A040202 |
| 90MW0102A | 90MW0102A-05 | 11/13/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 65.5 | ND | 0.157 | 1 | µg/L | U | MS-A040202 |
| 90MW0102A | 90MW0102A-05 | 11/13/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 65.5 | ND | 0.196 | 1 | µg/L | U | MS-A040202 |
| 90MW0102A | 90MW0102A-05 | 11/13/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 65.5 | ND | 0.53 | 1 | µg/L | U | MS-A040202 |
| 90MW0102A | 90MW0102A-05 | 11/13/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 65.5 | ND | 0.245 | 1 | µg/L | U | MS-A040202 |
| 90MW0102A | 90MW0102A-05 | 11/13/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 65.5 | ND | 0.195 | 1 | µg/L | U | MS-A040202 |
| 90MW0102A | 90MW0102A-05 | 11/13/2000 | SW8260 | N1 | TOLUENE | WA | 65.5 | ND | 0.21 | 1 | µg/L | U | MS-A040202 |
| 90MW0102A | 90MW0102A-05 | 11/13/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 65.5 | ND | 0.166 | 1 | µg/L | U | MS-A040202 |
| 90MW0102A | 90MW0102A-05 | 11/13/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 65.5 | ND | 0.205 | 1 | µg/L | U | MS-A040202 |
| 90MW0102A | 90MW0102A-06 | 11/13/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 75.5 | ND | 0.228 | 1 | µg/L | U | MS-A040204 |
| 90MW0102A | 90MW0102A-06 | 11/13/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 75.5 | ND | 0.233 | 1 | µg/L | U | MS-A040204 |
| 90MW0102A | 90MW0102A-06 | 11/13/2000 | SW8260 | N1 | BENZENE | WA | 75.5 | ND | 0.354 | 1 | µg/L | U | MS-A040204 |
| 90MW0102A | 90MW0102A-06 | 11/13/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 75.5 | ND | 0.128 | 1 | µg/L | U | MS-A040204 |
| 90MW0102A | 90MW0102A-06 | 11/13/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 75.5 | ND | 0.157 | 1 | µg/L | U | MS-A040204 |
| 90MW0102A | 90MW0102A-06 | 11/13/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 75.5 | ND | 0.196 | 1 | µg/L | U | MS-A040204 |
| 90MW0102A | 90MW0102A-06 | 11/13/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 75.5 | ND | 0.53 | 1 | µg/L | U | MS-A040204 |
| 90MW0102A | 90MW0102A-06 | 11/13/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 75.5 | ND | 0.245 | 1 | µg/L | U | MS-A040204 |
| 90MW0102A | 90MW0102A-06 | 11/13/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 75.5 | ND | 0.195 | 1 | µg/L | U | MS-A040204 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0102A | 90MW0102A-06 | 11/13/2000 | SW8260 | N1 | TOLUENE | WA | 75.5 | ND | 0.21 | 1 | µg/L | U | MS-A040204 |
| 90MW0102A | 90MW0102A-06 | 11/13/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 75.5 | ND | 0.166 | 1 | µg/L | U | MS-A040204 |
| 90MW0102A | 90MW0102A-06 | 11/13/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 75.5 | ND | 0.205 | 1 | µg/L | U | MS-A040204 |
| 90MW0102A | 90MW0102A-07 | 11/13/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 85.5 | ND | 0.228 | 1 | µg/L | U | MS-A040302 |
| 90MW0102A | 90MW0102A-07 | 11/13/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 85.5 | ND | 0.233 | 1 | µg/L | U | MS-A040302 |
| 90MW0102A | 90MW0102A-07 | 11/13/2000 | SW8260 | N1 | BENZENE | WA | 85.5 | ND | 0.354 | 1 | µg/L | U | MS-A040302 |
| 90MW0102A | 90MW0102A-07 | 11/13/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 85.5 | ND | 0.128 | 1 | µg/L | U | MS-A040302 |
| 90MW0102A | 90MW0102A-07 | 11/13/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 85.5 | ND | 0.157 | 1 | µg/L | U | MS-A040302 |
| 90MW0102A | 90MW0102A-07 | 11/13/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 85.5 | ND | 0.196 | 1 | µg/L | U | MS-A040302 |
| 90MW0102A | 90MW0102A-07 | 11/13/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 85.5 | ND | 0.53 | 1 | µg/L | U | MS-A040302 |
| 90MW0102A | 90MW0102A-07 | 11/13/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 85.5 | ND | 0.245 | 1 | µg/L | U | MS-A040302 |
| 90MW0102A | 90MW0102A-07 | 11/13/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 85.5 | ND | 0.195 | 1 | µg/L | U | MS-A040302 |
| 90MW0102A | 90MW0102A-07 | 11/13/2000 | SW8260 | N1 | TOLUENE | WA | 85.5 | ND | 0.21 | 1 | µg/L | U | MS-A040302 |
| 90MW0102A | 90MW0102A-07 | 11/13/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 85.5 | ND | 0.166 | 1 | µg/L | U | MS-A040302 |
| 90MW0102A | 90MW0102A-07 | 11/13/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 85.5 | ND | 0.205 | 1 | µg/L | U | MS-A040302 |
| 90MW0102A | 90MW0102A-08 | 11/13/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 95.5 | ND | 0.228 | 1 | µg/L | U | MS-A040304 |
| 90MW0102A | 90MW0102A-08 | 11/13/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 95.5 | ND | 0.233 | 1 | µg/L | U | MS-A040304 |
| 90MW0102A | 90MW0102A-08 | 11/13/2000 | SW8260 | N1 | BENZENE | WA | 95.5 | ND | 0.354 | 1 | µg/L | U | MS-A040304 |
| 90MW0102A | 90MW0102A-08 | 11/13/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 95.5 | ND | 0.128 | 1 | µg/L | U | MS-A040304 |
| 90MW0102A | 90MW0102A-08 | 11/13/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 95.5 | ND | 0.157 | 1 | µg/L | U | MS-A040304 |
| 90MW0102A | 90MW0102A-08 | 11/13/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 95.5 | ND | 0.196 | 1 | µg/L | U | MS-A040304 |
| 90MW0102A | 90MW0102A-08 | 11/13/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 95.5 | ND | 0.53 | 1 | µg/L | U | MS-A040304 |
| 90MW0102A | 90MW0102A-08 | 11/13/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 95.5 | ND | 0.245 | 1 | µg/L | U | MS-A040304 |
| 90MW0102A | 90MW0102A-08 | 11/13/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 95.5 | ND | 0.195 | 1 | µg/L | U | MS-A040304 |
| 90MW0102A | 90MW0102A-08 | 11/13/2000 | SW8260 | N1 | TOLUENE | WA | 95.5 | ND | 0.21 | 1 | µg/L | U | MS-A040304 |
| 90MW0102A | 90MW0102A-08 | 11/13/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 95.5 | ND | 0.166 | 1 | µg/L | U | MS-A040304 |
| 90MW0102A | 90MW0102A-08 | 11/13/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 95.5 | ND | 0.205 | 1 | µg/L | U | MS-A040304 |
| 90MW0102A | 90MW0102A-09 | 11/13/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 105.5 | ND | 0.228 | 1 | µg/L | U | MS-A040402 |
| 90MW0102A | 90MW0102A-09 | 11/13/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 105.5 | ND | 0.233 | 1 | µg/L | U | MS-A040402 |
| 90MW0102A | 90MW0102A-09 | 11/13/2000 | SW8260 | N1 | BENZENE | WA | 105.5 | ND | 0.354 | 1 | µg/L | U | MS-A040402 |
| 90MW0102A | 90MW0102A-09 | 11/13/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 105.5 | ND | 0.128 | 1 | µg/L | U | MS-A040402 |
| 90MW0102A | 90MW0102A-09 | 11/13/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 105.5 | ND | 0.157 | 1 | µg/L | U | MS-A040402 |
| 90MW0102A | 90MW0102A-09 | 11/13/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 105.5 | ND | 0.196 | 1 | µg/L | U | MS-A040402 |
| 90MW0102A | 90MW0102A-09 | 11/13/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 105.5 | ND | 0.53 | 1 | µg/L | U | MS-A040402 |
| 90MW0102A | 90MW0102A-09 | 11/13/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 105.5 | ND | 0.245 | 1 | µg/L | U | MS-A040402 |
| 90MW0102A | 90MW0102A-09 | 11/13/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 105.5 | ND | 0.195 | 1 | µg/L | U | MS-A040402 |
| 90MW0102A | 90MW0102A-09 | 11/13/2000 | SW8260 | N1 | TOLUENE | WA | 105.5 | ND | 0.21 | 1 | µg/L | U | MS-A040402 |
| 90MW0102A | 90MW0102A-09 | 11/13/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 105.5 | ND | 0.166 | 1 | µg/L | U | MS-A040402 |
| 90MW0102A | 90MW0102A-09 | 11/13/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 105.5 | ND | 0.205 | 1 | µg/L | U | MS-A040402 |
| 90MW0102A | 90MW0102A-10 | 11/13/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 115.5 | ND | 0.228 | 1 | µg/L | U | MS-A040404 |
| 90MW0102A | 90MW0102A-10 | 11/13/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 115.5 | ND | 0.233 | 1 | µg/L | U | MS-A040404 |
| 90MW0102A | 90MW0102A-10 | 11/13/2000 | SW8260 | N1 | BENZENE | WA | 115.5 | ND | 0.354 | 1 | µg/L | U | MS-A040404 |
| 90MW0102A | 90MW0102A-10 | 11/13/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 115.5 | ND | 0.128 | 1 | µg/L | U | MS-A040404 |
| 90MW0102A | 90MW0102A-10 | 11/13/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 115.5 | ND | 0.157 | 1 | µg/L | U | MS-A040404 |
| 90MW0102A | 90MW0102A-10 | 11/13/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 115.5 | ND | 0.196 | 1 | µg/L | U | MS-A040404 |
| 90MW0102A | 90MW0102A-10 | 11/13/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 115.5 | ND | 0.53 | 1 | µg/L | U | MS-A040404 |
| 90MW0102A | 90MW0102A-10 | 11/13/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 115.5 | ND | 0.245 | 1 | µg/L | U | MS-A040404 |
| 90MW0102A | 90MW0102A-10 | 11/13/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 115.5 | ND | 0.195 | 1 | µg/L | U | MS-A040404 |
| 90MW0102A | 90MW0102A-10 | 11/13/2000 | SW8260 | N1 | TOLUENE | WA | 115.5 | ND | 0.21 | 1 | µg/L | U | MS-A040404 |
| 90MW0102A | 90MW0102A-10 | 11/13/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 115.5 | ND | 0.166 | 1 | µg/L | U | MS-A040404 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0102A | 90MW0102A-10 | 11/13/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 115.5 | ND | 0.205 | 1 | µg/L | U | MS-A040404 |
| 90MW0102A | 90MW0102A-11 | 11/13/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 125.5 | ND | 0.228 | 1 | µg/L | U | MS-A040502 |
| 90MW0102A | 90MW0102A-11 | 11/13/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 125.5 | ND | 0.233 | 1 | µg/L | U | MS-A040502 |
| 90MW0102A | 90MW0102A-11 | 11/13/2000 | SW8260 | N1 | BENZENE | WA | 125.5 | ND | 0.354 | 1 | µg/L | U | MS-A040502 |
| 90MW0102A | 90MW0102A-11 | 11/13/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 125.5 | ND | 0.128 | 1 | µg/L | U | MS-A040502 |
| 90MW0102A | 90MW0102A-11 | 11/13/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 125.5 | ND | 0.157 | 1 | µg/L | U | MS-A040502 |
| 90MW0102A | 90MW0102A-11 | 11/13/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 125.5 | ND | 0.196 | 1 | µg/L | U | MS-A040502 |
| 90MW0102A | 90MW0102A-11 | 11/13/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 125.5 | ND | 0.53 | 1 | µg/L | U | MS-A040502 |
| 90MW0102A | 90MW0102A-11 | 11/13/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 125.5 | ND | 0.245 | 1 | µg/L | U | MS-A040502 |
| 90MW0102A | 90MW0102A-11 | 11/13/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 125.5 | ND | 0.195 | 1 | µg/L | U | MS-A040502 |
| 90MW0102A | 90MW0102A-11 | 11/13/2000 | SW8260 | N1 | TOLUENE | WA | 125.5 | ND | 0.21 | 1 | µg/L | U | MS-A040502 |
| 90MW0102A | 90MW0102A-11 | 11/13/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 125.5 | ND | 0.166 | 1 | µg/L | U | MS-A040502 |
| 90MW0102A | 90MW0102A-11 | 11/13/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 125.5 | ND | 0.205 | 1 | µg/L | U | MS-A040502 |
| 90MW0102A | 90MW0102A-12 | 11/13/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 135.5 | ND | 0.228 | 1 | µg/L | U | MS-A040504 |
| 90MW0102A | 90MW0102A-12 | 11/13/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 135.5 | ND | 0.233 | 1 | µg/L | U | MS-A040504 |
| 90MW0102A | 90MW0102A-12 | 11/13/2000 | SW8260 | N1 | BENZENE | WA | 135.5 | ND | 0.354 | 1 | µg/L | U | MS-A040504 |
| 90MW0102A | 90MW0102A-12 | 11/13/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 135.5 | ND | 0.128 | 1 | µg/L | U | MS-A040504 |
| 90MW0102A | 90MW0102A-12 | 11/13/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 135.5 | ND | 0.157 | 1 | µg/L | U | MS-A040504 |
| 90MW0102A | 90MW0102A-12 | 11/13/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 135.5 | ND | 0.196 | 1 | µg/L | U | MS-A040504 |
| 90MW0102A | 90MW0102A-12 | 11/13/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 135.5 | ND | 0.53 | 1 | µg/L | U | MS-A040504 |
| 90MW0102A | 90MW0102A-12 | 11/13/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 135.5 | ND | 0.245 | 1 | µg/L | U | MS-A040504 |
| 90MW0102A | 90MW0102A-12 | 11/13/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 135.5 | ND | 0.195 | 1 | µg/L | U | MS-A040504 |
| 90MW0102A | 90MW0102A-12 | 11/13/2000 | SW8260 | N1 | TOLUENE | WA | 135.5 | ND | 0.21 | 1 | µg/L | U | MS-A040504 |
| 90MW0102A | 90MW0102A-12 | 11/13/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 135.5 | ND | 0.166 | 1 | µg/L | U | MS-A040504 |
| 90MW0102A | 90MW0102A-12 | 11/13/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 135.5 | ND | 0.205 | 1 | µg/L | U | MS-A040504 |
| 90MW0102A | 90MW0102A-13 | 11/13/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 145.5 | ND | 0.228 | 1 | µg/L | U | MS-A040602 |
| 90MW0102A | 90MW0102A-13 | 11/13/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 145.5 | ND | 0.233 | 1 | µg/L | U | MS-A040602 |
| 90MW0102A | 90MW0102A-13 | 11/13/2000 | SW8260 | N1 | BENZENE | WA | 145.5 | ND | 0.354 | 1 | µg/L | U | MS-A040602 |
| 90MW0102A | 90MW0102A-13 | 11/13/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 145.5 | ND | 0.128 | 1 | µg/L | U | MS-A040602 |
| 90MW0102A | 90MW0102A-13 | 11/13/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 145.5 | ND | 0.157 | 1 | µg/L | U | MS-A040602 |
| 90MW0102A | 90MW0102A-13 | 11/13/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 145.5 | ND | 0.196 | 1 | µg/L | U | MS-A040602 |
| 90MW0102A | 90MW0102A-13 | 11/13/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 145.5 | ND | 0.53 | 1 | µg/L | U | MS-A040602 |
| 90MW0102A | 90MW0102A-13 | 11/13/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 145.5 | ND | 0.245 | 1 | µg/L | U | MS-A040602 |
| 90MW0102A | 90MW0102A-13 | 11/13/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 145.5 | ND | 0.195 | 1 | µg/L | U | MS-A040602 |
| 90MW0102A | 90MW0102A-13 | 11/13/2000 | SW8260 | N1 | TOLUENE | WA | 145.5 | ND | 0.21 | 1 | µg/L | U | MS-A040602 |
| 90MW0102A | 90MW0102A-13 | 11/13/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 145.5 | ND | 0.166 | 1 | µg/L | U | MS-A040602 |
| 90MW0102A | 90MW0102A-13 | 11/13/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 145.5 | ND | 0.205 | 1 | µg/L | U | MS-A040602 |
| 90MW0103A | 90MW0103A-01 | 11/15/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 17.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A041501 |
| 90MW0103A | 90MW0103A-02 | 11/15/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 37.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A041503 |
| 90MW0103A | 90MW0103A-03 | 11/15/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 57.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A041601 |
| 90MW0103A | 90MW0103A-03FD | 11/15/2000 | E504 | FD1 | 1,2-DIBROMOETHANE (EDB) | WA | 57.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A041603 |
| 90MW0103A | 90MW0103A-04 | 11/15/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 67.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A041605 |
| 90MW0103A | 90MW0103A-05 | 11/15/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 77.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A041701 |
| 90MW0103A | 90MW0103A-06 | 11/15/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 87.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A041703 |
| 90MW0103A | 90MW0103A-01 | 11/15/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 17.5 | ND | 0.228 | 1 | µg/L | U | MS-A041502 |
| 90MW0103A | 90MW0103A-01 | 11/15/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 17.5 | ND | 0.233 | 1 | µg/L | U | MS-A041502 |
| 90MW0103A | 90MW0103A-01 | 11/15/2000 | SW8260 | N1 | BENZENE | WA | 17.5 | ND | 0.354 | 1 | µg/L | U | MS-A041502 |
| 90MW0103A | 90MW0103A-01 | 11/15/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 17.5 | ND | 0.128 | 1 | µg/L | U | MS-A041502 |
| 90MW0103A | 90MW0103A-01 | 11/15/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 17.5 | ND | 0.157 | 1 | µg/L | U | MS-A041502 |
| 90MW0103A | 90MW0103A-01 | 11/15/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 17.5 | ND | 0.196 | 1 | µg/L | U | MS-A041502 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0103A | 90MW0103A-01 | 11/15/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 17.5 | ND | 0.53 | 1 | µg/L | U | MS-A041502 |
| 90MW0103A | 90MW0103A-01 | 11/15/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 17.5 | ND | 0.245 | 1 | µg/L | U | MS-A041502 |
| 90MW0103A | 90MW0103A-01 | 11/15/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 17.5 | ND | 0.195 | 1 | µg/L | U | MS-A041502 |
| 90MW0103A | 90MW0103A-01 | 11/15/2000 | SW8260 | N1 | TOLUENE | WA | 17.5 | ND | 0.21 | 1 | µg/L | U | MS-A041502 |
| 90MW0103A | 90MW0103A-01 | 11/15/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 17.5 | ND | 0.166 | 1 | µg/L | U | MS-A041502 |
| 90MW0103A | 90MW0103A-01 | 11/15/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 17.5 | ND | 0.205 | 1 | µg/L | U | MS-A041502 |
| 90MW0103A | 90MW0103A-02 | 11/15/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 37.5 | ND | 0.228 | 1 | µg/L | U | MS-A041504 |
| 90MW0103A | 90MW0103A-02 | 11/15/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 37.5 | ND | 0.233 | 1 | µg/L | U | MS-A041504 |
| 90MW0103A | 90MW0103A-02 | 11/15/2000 | SW8260 | N1 | BENZENE | WA | 37.5 | ND | 0.354 | 1 | µg/L | U | MS-A041504 |
| 90MW0103A | 90MW0103A-02 | 11/15/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 37.5 | ND | 0.128 | 1 | µg/L | U | MS-A041504 |
| 90MW0103A | 90MW0103A-02 | 11/15/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 37.5 | ND | 0.157 | 1 | µg/L | U | MS-A041504 |
| 90MW0103A | 90MW0103A-02 | 11/15/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 37.5 | ND | 0.196 | 1 | µg/L | U | MS-A041504 |
| 90MW0103A | 90MW0103A-02 | 11/15/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 37.5 | ND | 0.53 | 1 | µg/L | U | MS-A041504 |
| 90MW0103A | 90MW0103A-02 | 11/15/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 37.5 | ND | 0.245 | 1 | µg/L | U | MS-A041504 |
| 90MW0103A | 90MW0103A-02 | 11/15/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 37.5 | ND | 0.195 | 1 | µg/L | U | MS-A041504 |
| 90MW0103A | 90MW0103A-02 | 11/15/2000 | SW8260 | N1 | TOLUENE | WA | 37.5 | ND | 0.21 | 1 | µg/L | U | MS-A041504 |
| 90MW0103A | 90MW0103A-02 | 11/15/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 37.5 | ND | 0.166 | 1 | µg/L | U | MS-A041504 |
| 90MW0103A | 90MW0103A-02 | 11/15/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 37.5 | ND | 0.205 | 1 | µg/L | U | MS-A041504 |
| 90MW0103A | 90MW0103A-03 | 11/15/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 57.5 | ND | 0.228 | 1 | µg/L | U | MS-A041602 |
| 90MW0103A | 90MW0103A-03FD | 11/15/2000 | SW8260 | FD1 | 1,1,1-TRICHLOROETHANE | WA | 57.5 | ND | 0.228 | 1 | µg/L | U | MS-A041604 |
| 90MW0103A | 90MW0103A-03 | 11/15/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 57.5 | ND | 0.233 | 1 | µg/L | U | MS-A041602 |
| 90MW0103A | 90MW0103A-03FD | 11/15/2000 | SW8260 | FD1 | 1,1-DICHLOROETHENE | WA | 57.5 | ND | 0.233 | 1 | µg/L | U | MS-A041604 |
| 90MW0103A | 90MW0103A-03 | 11/15/2000 | SW8260 | N1 | BENZENE | WA | 57.5 | ND | 0.354 | 1 | µg/L | U | MS-A041602 |
| 90MW0103A | 90MW0103A-03FD | 11/15/2000 | SW8260 | FD1 | BENZENE | WA | 57.5 | ND | 0.354 | 1 | µg/L | U | MS-A041604 |
| 90MW0103A | 90MW0103A-03 | 11/15/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 57.5 | ND | 0.128 | 1 | µg/L | U | MS-A041602 |
| 90MW0103A | 90MW0103A-03FD | 11/15/2000 | SW8260 | FD1 | CARBON TETRACHLORIDE | WA | 57.5 | ND | 0.128 | 1 | µg/L | U | MS-A041604 |
| 90MW0103A | 90MW0103A-03 | 11/15/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 57.5 | ND | 0.157 | 1 | µg/L | U | MS-A041602 |
| 90MW0103A | 90MW0103A-03FD | 11/15/2000 | SW8260 | FD1 | CIS-1,2-DICHLOROETHENE | WA | 57.5 | ND | 0.157 | 1 | µg/L | U | MS-A041604 |
| 90MW0103A | 90MW0103A-03 | 11/15/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 57.5 | ND | 0.196 | 1 | µg/L | U | MS-A041602 |
| 90MW0103A | 90MW0103A-03FD | 11/15/2000 | SW8260 | FD1 | ETHYLBENZENE | WA | 57.5 | ND | 0.196 | 1 | µg/L | U | MS-A041604 |
| 90MW0103A | 90MW0103A-03 | 11/15/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 57.5 | ND | 0.53 | 1 | µg/L | U | MS-A041602 |
| 90MW0103A | 90MW0103A-03FD | 11/15/2000 | SW8260 | FD1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 57.5 | ND | 0.53 | 1 | µg/L | U | MS-A041604 |
| 90MW0103A | 90MW0103A-03 | 11/15/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 57.5 | ND | 0.245 | 1 | µg/L | U | MS-A041602 |
| 90MW0103A | 90MW0103A-03FD | 11/15/2000 | SW8260 | FD1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 57.5 | ND | 0.245 | 1 | µg/L | U | MS-A041604 |
| 90MW0103A | 90MW0103A-03 | 11/15/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 57.5 | ND | 0.195 | 1 | µg/L | U | MS-A041602 |
| 90MW0103A | 90MW0103A-03FD | 11/15/2000 | SW8260 | FD1 | TETRACHLOROETHENE(PCE) | WA | 57.5 | ND | 0.195 | 1 | µg/L | U | MS-A041604 |
| 90MW0103A | 90MW0103A-03 | 11/15/2000 | SW8260 | N1 | TOLUENE | WA | 57.5 | ND | 0.21 | 1 | µg/L | U | MS-A041602 |
| 90MW0103A | 90MW0103A-03FD | 11/15/2000 | SW8260 | FD1 | TOLUENE | WA | 57.5 | ND | 0.21 | 1 | µg/L | U | MS-A041604 |
| 90MW0103A | 90MW0103A-03 | 11/15/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 57.5 | ND | 0.166 | 1 | µg/L | U | MS-A041602 |
| 90MW0103A | 90MW0103A-03FD | 11/15/2000 | SW8260 | FD1 | TRANS-1,2-DICHLOROETHENE | WA | 57.5 | ND | 0.166 | 1 | µg/L | U | MS-A041604 |
| 90MW0103A | 90MW0103A-03 | 11/15/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 57.5 | ND | 0.205 | 1 | µg/L | U | MS-A041602 |
| 90MW0103A | 90MW0103A-03FD | 11/15/2000 | SW8260 | FD1 | TRICHLOROETHENE(TCE) | WA | 57.5 | ND | 0.205 | 1 | µg/L | U | MS-A041604 |
| 90MW0103A | 90MW0103A-04 | 11/15/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 67.5 | ND | 0.228 | 1 | µg/L | U | MS-A041606 |
| 90MW0103A | 90MW0103A-04 | 11/15/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 67.5 | ND | 0.233 | 1 | µg/L | U | MS-A041606 |
| 90MW0103A | 90MW0103A-04 | 11/15/2000 | SW8260 | N1 | BENZENE | WA | 67.5 | ND | 0.354 | 1 | µg/L | U | MS-A041606 |
| 90MW0103A | 90MW0103A-04 | 11/15/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 67.5 | ND | 0.128 | 1 | µg/L | U | MS-A041606 |
| 90MW0103A | 90MW0103A-04 | 11/15/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 67.5 | ND | 0.157 | 1 | µg/L | U | MS-A041606 |
| 90MW0103A | 90MW0103A-04 | 11/15/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 67.5 | ND | 0.196 | 1 | µg/L | U | MS-A041606 |
| 90MW0103A | 90MW0103A-04 | 11/15/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 67.5 | ND | 0.53 | 1 | µg/L | U | MS-A041606 |
| 90MW0103A | 90MW0103A-04 | 11/15/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 67.5 | ND | 0.245 | 1 | µg/L | U | MS-A041606 |

**Appendix D**
**Analytical Laboratory Results**
**October 2000 - January 2001**

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0103A | 90MW0103A-04 | 11/15/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 67.5 | ND | 0.195 | 1 | µg/L | U | MS-A041606 |
| 90MW0103A | 90MW0103A-04 | 11/15/2000 | SW8260 | N1 | TOLUENE | WA | 67.5 | ND | 0.21 | 1 | µg/L | U | MS-A041606 |
| 90MW0103A | 90MW0103A-04 | 11/15/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 67.5 | ND | 0.166 | 1 | µg/L | U | MS-A041606 |
| 90MW0103A | 90MW0103A-04 | 11/15/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 67.5 | ND | 0.205 | 1 | µg/L | U | MS-A041606 |
| 90MW0103A | 90MW0103A-05 | 11/15/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 77.5 | ND | 0.228 | 1 | µg/L | U | MS-A041702 |
| 90MW0103A | 90MW0103A-05 | 11/15/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 77.5 | ND | 0.233 | 1 | µg/L | U | MS-A041702 |
| 90MW0103A | 90MW0103A-05 | 11/15/2000 | SW8260 | N1 | BENZENE | WA | 77.5 | ND | 0.354 | 1 | µg/L | U | MS-A041702 |
| 90MW0103A | 90MW0103A-05 | 11/15/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 77.5 | ND | 0.128 | 1 | µg/L | U | MS-A041702 |
| 90MW0103A | 90MW0103A-05 | 11/15/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 77.5 | ND | 0.157 | 1 | µg/L | U | MS-A041702 |
| 90MW0103A | 90MW0103A-05 | 11/15/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 77.5 | ND | 0.196 | 1 | µg/L | U | MS-A041702 |
| 90MW0103A | 90MW0103A-05 | 11/15/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 77.5 | ND | 0.53 | 1 | µg/L | U | MS-A041702 |
| 90MW0103A | 90MW0103A-05 | 11/15/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 77.5 | ND | 0.245 | 1 | µg/L | U | MS-A041702 |
| 90MW0103A | 90MW0103A-05 | 11/15/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 77.5 | ND | 0.195 | 1 | µg/L | U | MS-A041702 |
| 90MW0103A | 90MW0103A-05 | 11/15/2000 | SW8260 | N1 | TOLUENE | WA | 77.5 | ND | 0.21 | 1 | µg/L | U | MS-A041702 |
| 90MW0103A | 90MW0103A-05 | 11/15/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 77.5 | ND | 0.166 | 1 | µg/L | U | MS-A041702 |
| 90MW0103A | 90MW0103A-05 | 11/15/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 77.5 | ND | 0.205 | 1 | µg/L | U | MS-A041702 |
| 90MW0103A | 90MW0103A-06 | 11/15/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 87.5 | ND | 0.228 | 1 | µg/L | U | MS-A041704 |
| 90MW0103A | 90MW0103A-06 | 11/15/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 87.5 | ND | 0.233 | 1 | µg/L | U | MS-A041704 |
| 90MW0103A | 90MW0103A-06 | 11/15/2000 | SW8260 | N1 | BENZENE | WA | 87.5 | ND | 0.354 | 1 | µg/L | U | MS-A041704 |
| 90MW0103A | 90MW0103A-06 | 11/15/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 87.5 | ND | 0.128 | 1 | µg/L | U | MS-A041704 |
| 90MW0103A | 90MW0103A-06 | 11/15/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 87.5 | ND | 0.157 | 1 | µg/L | U | MS-A041704 |
| 90MW0103A | 90MW0103A-06 | 11/15/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 87.5 | ND | 0.196 | 1 | µg/L | U | MS-A041704 |
| 90MW0103A | 90MW0103A-06 | 11/15/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 87.5 | ND | 0.53 | 1 | µg/L | U | MS-A041704 |
| 90MW0103A | 90MW0103A-06 | 11/15/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 87.5 | ND | 0.245 | 1 | µg/L | U | MS-A041704 |
| 90MW0103A | 90MW0103A-06 | 11/15/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 87.5 | ND | 0.195 | 1 | µg/L | U | MS-A041704 |
| 90MW0103A | 90MW0103A-06 | 11/15/2000 | SW8260 | N1 | TOLUENE | WA | 87.5 | ND | 0.21 | 1 | µg/L | U | MS-A041704 |
| 90MW0103A | 90MW0103A-06 | 11/15/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 87.5 | ND | 0.166 | 1 | µg/L | U | MS-A041704 |
| 90MW0103A | 90MW0103A-06 | 11/15/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 87.5 | ND | 0.205 | 1 | µg/L | U | MS-A041704 |
| 90MW0103A | 90MW0103A-07 | 11/16/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 97.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A041801 |
| 90MW0103A | 90MW0103A-08 | 11/16/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 107.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A041803 |
| 90MW0103A | 90MW0103A-09 | 11/16/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 117.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A041901 |
| 90MW0103A | 90MW0103A-10 | 11/16/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 127.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A041903 |
| 90MW0103A | 90MW0103A-11 | 11/16/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 137.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A042001 |
| 90MW0103A | 90MW0103A-12 | 11/16/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 147.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A042003 |
| 90MW0103A | 90MW0103A-13 | 11/16/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 157.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A042101 |
| 90MW0103A | 90MW0103A-14 | 11/16/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 167.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A042103 |
| 90MW0103A | 90MW0103A-15 | 11/16/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 177.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A042201 |
| 90MW0103A | 90MW0103A-15FD | 11/16/2000 | E504 | FD1 | 1,2-DIBROMOETHANE (EDB) | WA | 177.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A042203 |
| 90MW0103A | 90MW0103A-16 | 11/16/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 187.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A042205 |
| 90MW0103A | 90MW0103A-17 | 11/16/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 197.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A042301 |
| 90MW0103A | 90MW0103A-07 | 11/16/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 97.5 | ND | 0.228 | 1 | µg/L | U | MS-A041802 |
| 90MW0103A | 90MW0103A-07 | 11/16/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 97.5 | ND | 0.233 | 1 | µg/L | U | MS-A041802 |
| 90MW0103A | 90MW0103A-07 | 11/16/2000 | SW8260 | N1 | BENZENE | WA | 97.5 | ND | 0.354 | 1 | µg/L | U | MS-A041802 |
| 90MW0103A | 90MW0103A-07 | 11/16/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 97.5 | ND | 0.128 | 1 | µg/L | U | MS-A041802 |
| 90MW0103A | 90MW0103A-07 | 11/16/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 97.5 | ND | 0.157 | 1 | µg/L | U | MS-A041802 |
| 90MW0103A | 90MW0103A-07 | 11/16/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 97.5 | ND | 0.196 | 1 | µg/L | U | MS-A041802 |
| 90MW0103A | 90MW0103A-07 | 11/16/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 97.5 | ND | 0.53 | 1 | µg/L | U | MS-A041802 |
| 90MW0103A | 90MW0103A-07 | 11/16/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 97.5 | ND | 0.245 | 1 | µg/L | U | MS-A041802 |
| 90MW0103A | 90MW0103A-07 | 11/16/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 97.5 | ND | 0.195 | 1 | µg/L | U | MS-A041802 |
| 90MW0103A | 90MW0103A-07 | 11/16/2000 | SW8260 | N1 | TOLUENE | WA | 97.5 | ND | 0.21 | 1 | µg/L | U | MS-A041802 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0103A | 90MW0103A-07 | 11/16/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 97.5 | ND | 0.166 | 1 | µg/L | U | MS-A041802 |
| 90MW0103A | 90MW0103A-07 | 11/16/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 97.5 | ND | 0.205 | 1 | µg/L | U | MS-A041802 |
| 90MW0103A | 90MW0103A-08 | 11/16/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 107.5 | ND | 0.228 | 1 | µg/L | U | MS-A041804 |
| 90MW0103A | 90MW0103A-08 | 11/16/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 107.5 | ND | 0.233 | 1 | µg/L | U | MS-A041804 |
| 90MW0103A | 90MW0103A-08 | 11/16/2000 | SW8260 | N1 | BENZENE | WA | 107.5 | ND | 0.354 | 1 | µg/L | U | MS-A041804 |
| 90MW0103A | 90MW0103A-08 | 11/16/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 107.5 | ND | 0.128 | 1 | µg/L | U | MS-A041804 |
| 90MW0103A | 90MW0103A-08 | 11/16/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 107.5 | ND | 0.157 | 1 | µg/L | U | MS-A041804 |
| 90MW0103A | 90MW0103A-08 | 11/16/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 107.5 | ND | 0.196 | 1 | µg/L | U | MS-A041804 |
| 90MW0103A | 90MW0103A-08 | 11/16/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 107.5 | ND | 0.53 | 1 | µg/L | U | MS-A041804 |
| 90MW0103A | 90MW0103A-08 | 11/16/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 107.5 | ND | 0.245 | 1 | µg/L | U | MS-A041804 |
| 90MW0103A | 90MW0103A-08 | 11/16/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 107.5 | ND | 0.195 | 1 | µg/L | U | MS-A041804 |
| 90MW0103A | 90MW0103A-08 | 11/16/2000 | SW8260 | N1 | TOLUENE | WA | 107.5 | ND | 0.21 | 1 | µg/L | U | MS-A041804 |
| 90MW0103A | 90MW0103A-08 | 11/16/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 107.5 | ND | 0.166 | 1 | µg/L | U | MS-A041804 |
| 90MW0103A | 90MW0103A-08 | 11/16/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 107.5 | ND | 0.205 | 1 | µg/L | U | MS-A041804 |
| 90MW0103A | 90MW0103A-09 | 11/16/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 117.5 | ND | 0.228 | 1 | µg/L | U | MS-A041902 |
| 90MW0103A | 90MW0103A-09 | 11/16/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 117.5 | ND | 0.233 | 1 | µg/L | U | MS-A041902 |
| 90MW0103A | 90MW0103A-09 | 11/16/2000 | SW8260 | N1 | BENZENE | WA | 117.5 | ND | 0.354 | 1 | µg/L | U | MS-A041902 |
| 90MW0103A | 90MW0103A-09 | 11/16/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 117.5 | ND | 0.128 | 1 | µg/L | U | MS-A041902 |
| 90MW0103A | 90MW0103A-09 | 11/16/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 117.5 | ND | 0.157 | 1 | µg/L | U | MS-A041902 |
| 90MW0103A | 90MW0103A-09 | 11/16/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 117.5 | ND | 0.196 | 1 | µg/L | U | MS-A041902 |
| 90MW0103A | 90MW0103A-09 | 11/16/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 117.5 | ND | 0.53 | 1 | µg/L | U | MS-A041902 |
| 90MW0103A | 90MW0103A-09 | 11/16/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 117.5 | ND | 0.245 | 1 | µg/L | U | MS-A041902 |
| 90MW0103A | 90MW0103A-09 | 11/16/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 117.5 | ND | 0.195 | 1 | µg/L | U | MS-A041902 |
| 90MW0103A | 90MW0103A-09 | 11/16/2000 | SW8260 | N1 | TOLUENE | WA | 117.5 | ND | 0.21 | 1 | µg/L | U | MS-A041902 |
| 90MW0103A | 90MW0103A-09 | 11/16/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 117.5 | ND | 0.166 | 1 | µg/L | U | MS-A041902 |
| 90MW0103A | 90MW0103A-09 | 11/16/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 117.5 | ND | 0.205 | 1 | µg/L | U | MS-A041902 |
| 90MW0103A | 90MW0103A-10 | 11/16/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 127.5 | ND | 0.228 | 1 | µg/L | U | MS-A041904 |
| 90MW0103A | 90MW0103A-10 | 11/16/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 127.5 | ND | 0.233 | 1 | µg/L | U | MS-A041904 |
| 90MW0103A | 90MW0103A-10 | 11/16/2000 | SW8260 | N1 | BENZENE | WA | 127.5 | ND | 0.354 | 1 | µg/L | U | MS-A041904 |
| 90MW0103A | 90MW0103A-10 | 11/16/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 127.5 | ND | 0.128 | 1 | µg/L | U | MS-A041904 |
| 90MW0103A | 90MW0103A-10 | 11/16/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 127.5 | ND | 0.157 | 1 | µg/L | U | MS-A041904 |
| 90MW0103A | 90MW0103A-10 | 11/16/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 127.5 | ND | 0.196 | 1 | µg/L | U | MS-A041904 |
| 90MW0103A | 90MW0103A-10 | 11/16/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 127.5 | ND | 0.53 | 1 | µg/L | U | MS-A041904 |
| 90MW0103A | 90MW0103A-10 | 11/16/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 127.5 | ND | 0.245 | 1 | µg/L | U | MS-A041904 |
| 90MW0103A | 90MW0103A-10 | 11/16/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 127.5 | ND | 0.195 | 1 | µg/L | U | MS-A041904 |
| 90MW0103A | 90MW0103A-10 | 11/16/2000 | SW8260 | N1 | TOLUENE | WA | 127.5 | ND | 0.21 | 1 | µg/L | U | MS-A041904 |
| 90MW0103A | 90MW0103A-10 | 11/16/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 127.5 | ND | 0.166 | 1 | µg/L | U | MS-A041904 |
| 90MW0103A | 90MW0103A-10 | 11/16/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 127.5 | ND | 0.205 | 1 | µg/L | U | MS-A041904 |
| 90MW0103A | 90MW0103A-11 | 11/16/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 137.5 | ND | 0.228 | 1 | µg/L | U | MS-A042002 |
| 90MW0103A | 90MW0103A-11 | 11/16/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 137.5 | ND | 0.233 | 1 | µg/L | U | MS-A042002 |
| 90MW0103A | 90MW0103A-11 | 11/16/2000 | SW8260 | N1 | BENZENE | WA | 137.5 | ND | 0.354 | 1 | µg/L | U | MS-A042002 |
| 90MW0103A | 90MW0103A-11 | 11/16/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 137.5 | ND | 0.128 | 1 | µg/L | U | MS-A042002 |
| 90MW0103A | 90MW0103A-11 | 11/16/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 137.5 | ND | 0.157 | 1 | µg/L | U | MS-A042002 |
| 90MW0103A | 90MW0103A-11 | 11/16/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 137.5 | ND | 0.196 | 1 | µg/L | U | MS-A042002 |
| 90MW0103A | 90MW0103A-11 | 11/16/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 137.5 | ND | 0.53 | 1 | µg/L | U | MS-A042002 |
| 90MW0103A | 90MW0103A-11 | 11/16/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 137.5 | ND | 0.245 | 1 | µg/L | U | MS-A042002 |
| 90MW0103A | 90MW0103A-11 | 11/16/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 137.5 | ND | 0.195 | 1 | µg/L | U | MS-A042002 |
| 90MW0103A | 90MW0103A-11 | 11/16/2000 | SW8260 | N1 | TOLUENE | WA | 137.5 | ND | 0.21 | 1 | µg/L | U | MS-A042002 |
| 90MW0103A | 90MW0103A-11 | 11/16/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 137.5 | ND | 0.166 | 1 | µg/L | U | MS-A042002 |
| 90MW0103A | 90MW0103A-11 | 11/16/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 137.5 | ND | 0.205 | 1 | µg/L | U | MS-A042002 |

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0103A | 90MW0103A-12 | 11/16/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 147.5 | ND | 0.228 | 1 | µg/L | U | MS-A042004 |
| 90MW0103A | 90MW0103A-12 | 11/16/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 147.5 | ND | 0.233 | 1 | µg/L | U | MS-A042004 |
| 90MW0103A | 90MW0103A-12 | 11/16/2000 | SW8260 | N1 | BENZENE | WA | 147.5 | ND | 0.354 | 1 | µg/L | U | MS-A042004 |
| 90MW0103A | 90MW0103A-12 | 11/16/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 147.5 | ND | 0.128 | 1 | µg/L | U | MS-A042004 |
| 90MW0103A | 90MW0103A-12 | 11/16/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 147.5 | ND | 0.157 | 1 | µg/L | U | MS-A042004 |
| 90MW0103A | 90MW0103A-12 | 11/16/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 147.5 | ND | 0.196 | 1 | µg/L | U | MS-A042004 |
| 90MW0103A | 90MW0103A-12 | 11/16/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 147.5 | ND | 0.53 | 1 | µg/L | U | MS-A042004 |
| 90MW0103A | 90MW0103A-12 | 11/16/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 147.5 | ND | 0.245 | 1 | µg/L | U | MS-A042004 |
| 90MW0103A | 90MW0103A-12 | 11/16/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 147.5 | ND | 0.195 | 1 | µg/L | U | MS-A042004 |
| 90MW0103A | 90MW0103A-12 | 11/16/2000 | SW8260 | N1 | TOLUENE | WA | 147.5 | ND | 0.21 | 1 | µg/L | U | MS-A042004 |
| 90MW0103A | 90MW0103A-12 | 11/16/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 147.5 | ND | 0.166 | 1 | µg/L | U | MS-A042004 |
| 90MW0103A | 90MW0103A-12 | 11/16/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 147.5 | ND | 0.205 | 1 | µg/L | U | MS-A042004 |
| 90MW0103A | 90MW0103A-13 | 11/16/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 157.5 | ND | 0.228 | 1 | µg/L | U | MS-A042102 |
| 90MW0103A | 90MW0103A-13 | 11/16/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 157.5 | ND | 0.233 | 1 | µg/L | U | MS-A042102 |
| 90MW0103A | 90MW0103A-13 | 11/16/2000 | SW8260 | N1 | BENZENE | WA | 157.5 | ND | 0.354 | 1 | µg/L | U | MS-A042102 |
| 90MW0103A | 90MW0103A-13 | 11/16/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 157.5 | ND | 0.128 | 1 | µg/L | U | MS-A042102 |
| 90MW0103A | 90MW0103A-13 | 11/16/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 157.5 | ND | 0.157 | 1 | µg/L | U | MS-A042102 |
| 90MW0103A | 90MW0103A-13 | 11/16/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 157.5 | ND | 0.196 | 1 | µg/L | U | MS-A042102 |
| 90MW0103A | 90MW0103A-13 | 11/16/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 157.5 | ND | 0.53 | 1 | µg/L | U | MS-A042102 |
| 90MW0103A | 90MW0103A-13 | 11/16/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 157.5 | ND | 0.245 | 1 | µg/L | U | MS-A042102 |
| 90MW0103A | 90MW0103A-13 | 11/16/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 157.5 | ND | 0.195 | 1 | µg/L | U | MS-A042102 |
| 90MW0103A | 90MW0103A-13 | 11/16/2000 | SW8260 | N1 | TOLUENE | WA | 157.5 | ND | 0.21 | 1 | µg/L | U | MS-A042102 |
| 90MW0103A | 90MW0103A-13 | 11/16/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 157.5 | ND | 0.166 | 1 | µg/L | U | MS-A042102 |
| 90MW0103A | 90MW0103A-13 | 11/16/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 157.5 | ND | 0.205 | 1 | µg/L | U | MS-A042102 |
| 90MW0103A | 90MW0103A-14 | 11/16/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 167.5 | ND | 0.228 | 1 | µg/L | U | MS-A042104 |
| 90MW0103A | 90MW0103A-14 | 11/16/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 167.5 | ND | 0.233 | 1 | µg/L | U | MS-A042104 |
| 90MW0103A | 90MW0103A-14 | 11/16/2000 | SW8260 | N1 | BENZENE | WA | 167.5 | ND | 0.354 | 1 | µg/L | U | MS-A042104 |
| 90MW0103A | 90MW0103A-14 | 11/16/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 167.5 | ND | 0.128 | 1 | µg/L | U | MS-A042104 |
| 90MW0103A | 90MW0103A-14 | 11/16/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 167.5 | ND | 0.157 | 1 | µg/L | U | MS-A042104 |
| 90MW0103A | 90MW0103A-14 | 11/16/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 167.5 | ND | 0.196 | 1 | µg/L | U | MS-A042104 |
| 90MW0103A | 90MW0103A-14 | 11/16/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 167.5 | ND | 0.53 | 1 | µg/L | U | MS-A042104 |
| 90MW0103A | 90MW0103A-14 | 11/16/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 167.5 | ND | 0.245 | 1 | µg/L | U | MS-A042104 |
| 90MW0103A | 90MW0103A-14 | 11/16/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 167.5 | ND | 0.195 | 1 | µg/L | U | MS-A042104 |
| 90MW0103A | 90MW0103A-14 | 11/16/2000 | SW8260 | N1 | TOLUENE | WA | 167.5 | ND | 0.21 | 1 | µg/L | U | MS-A042104 |
| 90MW0103A | 90MW0103A-14 | 11/16/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 167.5 | ND | 0.166 | 1 | µg/L | U | MS-A042104 |
| 90MW0103A | 90MW0103A-14 | 11/16/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 167.5 | ND | 0.205 | 1 | µg/L | U | MS-A042104 |
| 90MW0103A | 90MW0103A-15 | 11/16/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 177.5 | ND | 0.228 | 1 | µg/L | U | MS-A042202 |
| 90MW0103A | 90MW0103A-15FD | 11/16/2000 | SW8260 | FD1 | 1,1,1-TRICHLOROETHANE | WA | 177.5 | ND | 0.228 | 1 | µg/L | U | MS-A042204 |
| 90MW0103A | 90MW0103A-15 | 11/16/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 177.5 | ND | 0.233 | 1 | µg/L | U | MS-A042202 |
| 90MW0103A | 90MW0103A-15FD | 11/16/2000 | SW8260 | FD1 | 1,1-DICHLOROETHENE | WA | 177.5 | ND | 0.233 | 1 | µg/L | U | MS-A042204 |
| 90MW0103A | 90MW0103A-15 | 11/16/2000 | SW8260 | N1 | BENZENE | WA | 177.5 | ND | 0.354 | 1 | µg/L | U | MS-A042202 |
| 90MW0103A | 90MW0103A-15FD | 11/16/2000 | SW8260 | FD1 | BENZENE | WA | 177.5 | ND | 0.354 | 1 | µg/L | U | MS-A042204 |
| 90MW0103A | 90MW0103A-15 | 11/16/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 177.5 | ND | 0.128 | 1 | µg/L | U | MS-A042202 |
| 90MW0103A | 90MW0103A-15FD | 11/16/2000 | SW8260 | FD1 | CARBON TETRACHLORIDE | WA | 177.5 | ND | 0.128 | 1 | µg/L | U | MS-A042204 |
| 90MW0103A | 90MW0103A-15 | 11/16/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 177.5 | ND | 0.157 | 1 | µg/L | U | MS-A042202 |
| 90MW0103A | 90MW0103A-15FD | 11/16/2000 | SW8260 | FD1 | CIS-1,2-DICHLOROETHENE | WA | 177.5 | ND | 0.157 | 1 | µg/L | U | MS-A042204 |
| 90MW0103A | 90MW0103A-15 | 11/16/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 177.5 | ND | 0.196 | 1 | µg/L | U | MS-A042202 |
| 90MW0103A | 90MW0103A-15FD | 11/16/2000 | SW8260 | FD1 | ETHYLBENZENE | WA | 177.5 | ND | 0.196 | 1 | µg/L | U | MS-A042204 |
| 90MW0103A | 90MW0103A-15 | 11/16/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 177.5 | ND | 0.53 | 1 | µg/L | U | MS-A042202 |
| 90MW0103A | 90MW0103A-15FD | 11/16/2000 | SW8260 | FD1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 177.5 | ND | 0.53 | 1 | µg/L | U | MS-A042204 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0103A | 90MW0103A-15 | 11/16/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 177.5 | ND | 0.245 | 1 | µg/L | U | MS-A042202 |
| 90MW0103A | 90MW0103A-15FD | 11/16/2000 | SW8260 | FD1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 177.5 | ND | 0.245 | 1 | µg/L | U | MS-A042204 |
| 90MW0103A | 90MW0103A-15 | 11/16/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 177.5 | ND | 0.195 | 1 | µg/L | U | MS-A042202 |
| 90MW0103A | 90MW0103A-15FD | 11/16/2000 | SW8260 | FD1 | TETRACHLOROETHENE(PCE) | WA | 177.5 | ND | 0.195 | 1 | µg/L | U | MS-A042204 |
| 90MW0103A | 90MW0103A-15 | 11/16/2000 | SW8260 | N1 | TOLUENE | WA | 177.5 | ND | 0.21 | 1 | µg/L | U | MS-A042202 |
| 90MW0103A | 90MW0103A-15FD | 11/16/2000 | SW8260 | FD1 | TOLUENE | WA | 177.5 | ND | 0.21 | 1 | µg/L | U | MS-A042204 |
| 90MW0103A | 90MW0103A-15 | 11/16/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 177.5 | ND | 0.166 | 1 | µg/L | U | MS-A042202 |
| 90MW0103A | 90MW0103A-15FD | 11/16/2000 | SW8260 | FD1 | TRANS-1,2-DICHLOROETHENE | WA | 177.5 | ND | 0.166 | 1 | µg/L | U | MS-A042204 |
| 90MW0103A | 90MW0103A-15 | 11/16/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 177.5 | ND | 0.205 | 1 | µg/L | U | MS-A042202 |
| 90MW0103A | 90MW0103A-15FD | 11/16/2000 | SW8260 | FD1 | TRICHLOROETHENE(TCE) | WA | 177.5 | ND | 0.205 | 1 | µg/L | U | MS-A042204 |
| 90MW0103A | 90MW0103A-16 | 11/16/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 187.5 | ND | 0.228 | 1 | µg/L | U | MS-A042206 |
| 90MW0103A | 90MW0103A-16 | 11/16/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 187.5 | ND | 0.233 | 1 | µg/L | U | MS-A042206 |
| 90MW0103A | 90MW0103A-16 | 11/16/2000 | SW8260 | N1 | BENZENE | WA | 187.5 | ND | 0.354 | 1 | µg/L | U | MS-A042206 |
| 90MW0103A | 90MW0103A-16 | 11/16/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 187.5 | ND | 0.128 | 1 | µg/L | U | MS-A042206 |
| 90MW0103A | 90MW0103A-16 | 11/16/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 187.5 | ND | 0.157 | 1 | µg/L | U | MS-A042206 |
| 90MW0103A | 90MW0103A-16 | 11/16/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 187.5 | ND | 0.196 | 1 | µg/L | U | MS-A042206 |
| 90MW0103A | 90MW0103A-16 | 11/16/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 187.5 | ND | 0.53 | 1 | µg/L | U | MS-A042206 |
| 90MW0103A | 90MW0103A-16 | 11/16/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 187.5 | ND | 0.245 | 1 | µg/L | U | MS-A042206 |
| 90MW0103A | 90MW0103A-16 | 11/16/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 187.5 | ND | 0.195 | 1 | µg/L | U | MS-A042206 |
| 90MW0103A | 90MW0103A-16 | 11/16/2000 | SW8260 | N1 | TOLUENE | WA | 187.5 | ND | 0.21 | 1 | µg/L | U | MS-A042206 |
| 90MW0103A | 90MW0103A-16 | 11/16/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 187.5 | ND | 0.166 | 1 | µg/L | U | MS-A042206 |
| 90MW0103A | 90MW0103A-16 | 11/16/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 187.5 | ND | 0.205 | 1 | µg/L | U | MS-A042206 |
| 90MW0103A | 90MW0103A-17 | 11/16/2000 | SW8260 | N1 | 1,1,1-TRICHLOROETHANE | WA | 197.5 | ND | 0.228 | 1 | µg/L | U | MS-A042302 |
| 90MW0103A | 90MW0103A-17 | 11/16/2000 | SW8260 | N1 | 1,1-DICHLOROETHENE | WA | 197.5 | ND | 0.233 | 1 | µg/L | U | MS-A042302 |
| 90MW0103A | 90MW0103A-17 | 11/16/2000 | SW8260 | N1 | BENZENE | WA | 197.5 | ND | 0.354 | 1 | µg/L | U | MS-A042302 |
| 90MW0103A | 90MW0103A-17 | 11/16/2000 | SW8260 | N1 | CARBON TETRACHLORIDE | WA | 197.5 | ND | 0.128 | 1 | µg/L | U | MS-A042302 |
| 90MW0103A | 90MW0103A-17 | 11/16/2000 | SW8260 | N1 | CIS-1,2-DICHLOROETHENE | WA | 197.5 | ND | 0.157 | 1 | µg/L | U | MS-A042302 |
| 90MW0103A | 90MW0103A-17 | 11/16/2000 | SW8260 | N1 | ETHYLBENZENE | WA | 197.5 | ND | 0.196 | 1 | µg/L | U | MS-A042302 |
| 90MW0103A | 90MW0103A-17 | 11/16/2000 | SW8260 | N1 | M,P-XYLENE (SUM OF ISOMERS) | WA | 197.5 | ND | 0.53 | 1 | µg/L | U | MS-A042302 |
| 90MW0103A | 90MW0103A-17 | 11/16/2000 | SW8260 | N1 | O-XYLENE (1,2-DIMETHYLBENZENE) | WA | 197.5 | ND | 0.245 | 1 | µg/L | U | MS-A042302 |
| 90MW0103A | 90MW0103A-17 | 11/16/2000 | SW8260 | N1 | TETRACHLOROETHENE(PCE) | WA | 197.5 | ND | 0.195 | 1 | µg/L | U | MS-A042302 |
| 90MW0103A | 90MW0103A-17 | 11/16/2000 | SW8260 | N1 | TOLUENE | WA | 197.5 | ND | 0.21 | 1 | µg/L | U | MS-A042302 |
| 90MW0103A | 90MW0103A-17 | 11/16/2000 | SW8260 | N1 | TRANS-1,2-DICHLOROETHENE | WA | 197.5 | ND | 0.166 | 1 | µg/L | U | MS-A042302 |
| 90MW0103A | 90MW0103A-17 | 11/16/2000 | SW8260 | N1 | TRICHLOROETHENE(TCE) | WA | 197.5 | ND | 0.205 | 1 | µg/L | U | MS-A042302 |
| 90PLT01001 | 90PLT01001- | 10/31/2000 | A4500B | N1 | NITROGEN, NITRITE | WW | 0 | ND | 0.7 | 3.2 | µg/L | U | MS-A038101 |
| 90PLT01001 | 90PLT01001- | 10/31/2000 | A4500E | N1 | PHOSPHORUS, TOTAL $PO_4$ (AS P) | WW | 0 | 26.4 | 0.6 | 2 | µg/L | | MS-A038101 |
| 90PLT01001 | 90PLT01001- | 10/31/2000 | A4500F | N1 | NITROGEN, NITRATE (AS N) | WW | 0 | 50.9 | 0.9 | 3 | µg/L | | MS-A038101 |
| 90PLT01001 | 90PLT01001- | 10/31/2000 | A4500H | N1 | NITROGEN, AMMONIA (AS N) | WW | 0 | ND | 5 | 10 | µg/L | U | MS-A038101 |
| 90PLT01001 | 90PLT01001- | 10/31/2000 | E310.1 | N1 | ALKALINITY, TOTAL (AS $CaCO_3$) | WW | 0 | 10 | 2.2 | 5 | MG/L | | MS-A038201 |
| 90PLT01001 | 90PLT01001- | 10/31/2000 | MCTNP | N1 | NITROGEN | WW | 0 | 53 | 8.7 | 30 | µg/L | | MS-A038101 |
| 90PLT01001 | 90PLT01001- | 10/31/2000 | MCTNP | N1 | PHOSPHORUS, TOTAL (AS P) | WW | 0 | 30.6 | 1.5 | 3 | µg/L | | MS-A038101 |
| 90PLT01001 | 90PLT01001- | 10/31/2000 | E415.1 | N1 | DISSOLVED ORGANIC CARBON | WW | 0 | 0.59 | 0.43 | 1 | MG/L | J | MS-A038202 |
| 90PLT01001 | 90PLT01001- | 10/31/2000 | E415.1 | N1 | TOTAL ORGANIC CARBON | WW | 0 | ND | 0.43 | 1 | MG/L | U | MS-A038203 |
| 90PLT01001 | 90PLT01001- | 11/30/2000 | A4500B | N1 | NITROGEN, NITRITE | WW | 0 | ND | 0.4 | 6 | µg/L | U | MS-A044401 |
| 90PLT01001 | 90PLT01001-FD | 11/30/2000 | A4500B | FD1 | NITROGEN, NITRITE | WW | 0 | ND | 0.2 | 3 | µg/L | U | MS-A044402 |
| 90PLT01001 | 90PLT01001- | 11/30/2000 | A4500E | N1 | PHOSPHORUS, TOTAL $PO_4$ (AS P) | WW | 0 | 25.9 | 0.6 | 2 | µg/L | | MS-A044401 |
| 90PLT01001 | 90PLT01001-FD | 11/30/2000 | A4500E | FD1 | PHOSPHORUS, TOTAL $PO_4$ (AS P) | WW | 0 | 25.9 | 0.6 | 2 | µg/L | | MS-A044402 |
| 90PLT01001 | 90PLT01001- | 11/30/2000 | A4500F | N1 | NITROGEN, NITRATE (AS N) | WW | 0 | 63.1 | 0.9 | 3 | µg/L | | MS-A044401 |
| 90PLT01001 | 90PLT01001-FD | 11/30/2000 | A4500F | FD1 | NITROGEN, NITRATE (AS N) | WW | 0 | 69 | 0.9 | 3 | µg/L | | MS-A044402 |
| 90PLT01001 | 90PLT01001- | 11/30/2000 | A4500H | N1 | NITROGEN, AMMONIA (AS N) | WW | 0 | ND | 5 | 10 | µg/L | U | MS-A044401 |

## Appendix D
## Analytical Laboratory Results
## October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90PLT01001 | 90PLT01001-FD | 11/30/2000 | A4500H | FD1 | NITROGEN, AMMONIA (AS N) | WW | 0 | ND | 5 | 10 | µg/L | U | MS-A044402 |
| 90PLT01001 | 90PLT01001- | 11/30/2000 | E310.1 | N1 | ALKALINITY, TOTAL (AS $CaCO_3$) | WW | 0 | 10 | 2.2 | 5 | MG/L | J | MS-A044501 |
| 90PLT01001 | 90PLT01001-FD | 11/30/2000 | E310.1 | FD1 | ALKALINITY, TOTAL (AS $CaCO_3$) | WW | 0 | 13.9 | 2.2 | 5 | MG/L | J | MS-A044504 |
| 90PLT01001 | 90PLT01001- | 11/30/2000 | MCTNP | N1 | NITROGEN | WW | 0 | 54.4 | 8.7 | 30 | µg/L | | MS-A044401 |
| 90PLT01001 | 90PLT01001-FD | 11/30/2000 | MCTNP | FD1 | NITROGEN | WW | 0 | 71.5 | 8.7 | 30 | µg/L | | MS-A044402 |
| 90PLT01001 | 90PLT01001- | 11/30/2000 | MCTNP | N1 | PHOSPHORUS, TOTAL (AS P) | WW | 0 | 32.1 | 1.5 | 3 | µg/L | | MS-A044401 |
| 90PLT01001 | 90PLT01001-FD | 11/30/2000 | MCTNP | FD1 | PHOSPHORUS, TOTAL (AS P) | WW | 0 | 32.1 | 1.5 | 3 | µg/L | | MS-A044402 |
| 90PLT01001 | 90PLT01001- | 11/30/2000 | E415.1 | N1 | DISSOLVED ORGANIC CARBON | WW | 0 | 0.498 | 0.43 | 1 | MG/L | J | MS-A044502 |
| 90PLT01001 | 90PLT01001-FD | 11/30/2000 | E415.1 | FD1 | DISSOLVED ORGANIC CARBON | WW | 0 | ND | 0.43 | 1 | MG/L | U | MS-A044505 |
| 90PLT01001 | 90PLT01001- | 11/30/2000 | E415.1 | N1 | TOTAL ORGANIC CARBON | WW | 0 | ND | 0.43 | 1 | MG/L | U | MS-A044503 |
| 90PLT01001 | 90PLT01001-FD | 11/30/2000 | E415.1 | FD1 | TOTAL ORGANIC CARBON | WW | 0 | ND | 0.43 | 1 | MG/L | U | MS-A044506 |
| 90PLT01001 | 90PLT01001- | 1/2/2001 | A4500B | N1 | NITROGEN, NITRITE | WW | 0 | ND | 0.2 | 3 | µg/L | U | MS-A050401 |
| 90PLT01001 | 90PLT01001- | 1/2/2001 | A4500E | N1 | PHOSPHORUS, TOTAL $PO_4$ (AS P) | WW | 0 | 26.2 | 0.6 | 2 | µg/L | | MS-A050401 |
| 90PLT01001 | 90PLT01001- | 1/2/2001 | A4500F | N1 | NITROGEN, NITRATE (AS N) | WW | 0 | ND | 84.1 | 85 | µg/L | U | MS-A050401 |
| 90PLT01001 | 90PLT01001- | 1/2/2001 | A4500H | N1 | NITROGEN, AMMONIA (AS N) | WW | 0 | ND | 5 | 10 | µg/L | U | MS-A050401 |
| 90PLT01001 | 90PLT01001-INF | 1/2/2001 | E310.1 | N1 | ALKALINITY, TOTAL (AS $CaCO_3$) | WW | 0 | ND | 11.3 | 13 | MG/L | U | MS-A050501 |
| 90PLT01001 | 90PLT01001- | 1/2/2001 | MCTNP | N1 | NITROGEN | WW | 0 | 31.3 | 8.7 | 30 | µg/L | | MS-A050401 |
| 90PLT01001 | 90PLT01001- | 1/2/2001 | MCTNP | N1 | PHOSPHORUS, TOTAL (AS P) | WW | 0 | 31.9 | 1.5 | 3 | µg/L | | MS-A050401 |
| 90PLT01001 | 90PLT01001-INF | 1/2/2001 | E415.1 | N1 | DISSOLVED ORGANIC CARBON | WW | 0 | 0.52 | 0.43 | 1 | MG/L | J | MS-A050502 |
| 90PLT01001 | 90PLT01001-INF | 1/2/2001 | E415.1 | N1 | TOTAL ORGANIC CARBON | WW | 0 | 0.47 | 0.43 | 1 | MG/L | J | MS-A050503 |
| 90PLT01053 | 90PLT01053- | 10/31/2000 | A4500B | N1 | NITROGEN, NITRITE | WW | 0 | ND | 0.2 | 3.2 | µg/L | U | MS-A038102 |
| 90PLT01053 | 90PLT01053- | 10/31/2000 | A4500E | N1 | PHOSPHORUS, TOTAL $PO_4$ (AS P) | WW | 0 | 24.8 | 0.6 | 2 | µg/L | | MS-A038102 |
| 90PLT01053 | 90PLT01053- | 10/31/2000 | A4500F | N1 | NITROGEN, NITRATE (AS N) | WW | 0 | 65.4 | 0.9 | 3 | µg/L | | MS-A038102 |
| 90PLT01053 | 90PLT01053- | 10/31/2000 | A4500H | N1 | NITROGEN, AMMONIA (AS N) | WW | 0 | ND | 5 | 10 | µg/L | U | MS-A038102 |
| 90PLT01053 | 90PLT01053- | 10/31/2000 | E310.1 | N1 | ALKALINITY, TOTAL (AS $CaCO_3$) | WW | 0 | 17.6 | 2.2 | 5 | MG/L | | MS-A038204 |
| 90PLT01053 | 90PLT01053- | 10/31/2000 | MCTNP | N1 | NITROGEN | WW | 0 | 60.8 | 8.7 | 30 | µg/L | | MS-A038102 |
| 90PLT01053 | 90PLT01053- | 10/31/2000 | MCTNP | N1 | PHOSPHORUS, TOTAL (AS P) | WW | 0 | 27.9 | 1.5 | 3 | µg/L | | MS-A038102 |
| 90PLT01053 | 90PLT01053- | 10/31/2000 | E415.1 | N1 | DISSOLVED ORGANIC CARBON | WW | 0 | ND | 0.43 | 1 | MG/L | U | MS-A038205 |
| 90PLT01053 | 90PLT01053- | 10/31/2000 | E415.1 | N1 | TOTAL ORGANIC CARBON | WW | 0 | ND | 0.43 | 1 | MG/L | U | MS-A038206 |
| 90PLT01053 | 90PLT01053- | 11/30/2000 | A4500B | N1 | NITROGEN, NITRITE | WW | 0 | ND | 0.8 | 6 | µg/L | U | MS-A044403 |
| 90PLT01053 | 90PLT01053- | 11/30/2000 | A4500E | N1 | PHOSPHORUS, TOTAL $PO_4$ (AS P) | WW | 0 | 26.5 | 0.6 | 2 | µg/L | | MS-A044403 |
| 90PLT01053 | 90PLT01053- | 11/30/2000 | A4500F | N1 | NITROGEN, NITRATE (AS N) | WW | 0 | 68.7 | 0.9 | 3 | µg/L | | MS-A044403 |
| 90PLT01053 | 90PLT01053- | 11/30/2000 | A4500H | N1 | NITROGEN, AMMONIA (AS N) | WW | 0 | ND | 5 | 10 | µg/L | U | MS-A044403 |
| 90PLT01053 | 90PLT01053- | 11/30/2000 | E310.1 | N1 | ALKALINITY, TOTAL (AS $CaCO_3$) | WW | 0 | 14.7 | 2.2 | 5 | MG/L | J | MS-A044507 |
| 90PLT01053 | 90PLT01053- | 11/30/2000 | MCTNP | N1 | NITROGEN | WW | 0 | 62.3 | 8.7 | 30 | µg/L | | MS-A044403 |
| 90PLT01053 | 90PLT01053- | 11/30/2000 | MCTNP | N1 | PHOSPHORUS, TOTAL (AS P) | WW | 0 | 30.5 | 1.5 | 3 | µg/L | | MS-A044403 |
| 90PLT01053 | 90PLT01053- | 11/30/2000 | E415.1 | N1 | DISSOLVED ORGANIC CARBON | WW | 0 | ND | 0.43 | 1 | MG/L | U | MS-A044508 |
| 90PLT01053 | 90PLT01053- | 11/30/2000 | E415.1 | N1 | TOTAL ORGANIC CARBON | WW | 0 | ND | 0.43 | 1 | MG/L | U | MS-A044509 |
| 90PLT01053 | 90PLT01053- | 1/2/2001 | A4500B | N1 | NITROGEN, NITRITE | WW | 0 | ND | 0.2 | 3 | µg/L | U | MS-A050402 |
| 90PLT01053 | 90PLT01053- | 1/2/2001 | A4500E | N1 | PHOSPHORUS, TOTAL $PO_4$ (AS P) | WW | 0 | 27.1 | 0.6 | 2 | µg/L | | MS-A050402 |
| 90PLT01053 | 90PLT01053- | 1/2/2001 | A4500F | N1 | NITROGEN, NITRATE (AS N) | WW | 0 | ND | 83.6 | 85 | µg/L | U | MS-A050402 |
| 90PLT01053 | 90PLT01053- | 1/2/2001 | A4500H | N1 | NITROGEN, AMMONIA (AS N) | WW | 0 | ND | 5 | 10 | µg/L | U | MS-A050402 |
| 90PLT01053 | 90PLT01053-EFF | 1/2/2001 | E310.1 | N1 | ALKALINITY, TOTAL (AS $CaCO_3$) | WW | 0 | 15 | 2.2 | 10 | MG/L | | MS-A050504 |
| 90PLT01053 | 90PLT01053- | 1/2/2001 | MCTNP | N1 | NITROGEN | WW | 0 | 62.3 | 8.7 | 30 | µg/L | | MS-A050402 |
| 90PLT01053 | 90PLT01053- | 1/2/2001 | MCTNP | N1 | PHOSPHORUS, TOTAL (AS P) | WW | 0 | 30.4 | 1.5 | 3 | µg/L | | MS-A050402 |
| 90PLT01053 | 90PLT01053-EFF | 1/2/2001 | E415.1 | N1 | DISSOLVED ORGANIC CARBON | WW | 0 | 0.7 | 0.43 | 1 | MG/L | J | MS-A050505 |
| 90PLT01053 | 90PLT01053-EFF | 1/2/2001 | E415.1 | N1 | TOTAL ORGANIC CARBON | WW | 0 | ND | 0.43 | 1 | MG/L | U | MS-A050506 |
| 90PZ1-B1 | 90PZ1-B1- | 10/25/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 74.2 | ND | 0.005 | 0.01 | µg/L | U | MS-A036104 |
| 90RIW0009 | 90RIW0009-01 | 11/13/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 101.4 | ND | 0.005 | 0.01 | µg/L | U | MS-A036301 |
| 90RIW0009 | 90RIW0009-02 | 11/13/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 101.4 | ND | 0.005 | 0.01 | µg/L | U | MS-A036302 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ECMWSNP02D | ECMWSNP02D- | 11/1/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 82.4 | 0.834 | 0.025 | 0.05 | µg/L | | MS-A042801 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 82.4 | ND | 0.0056 | 0.01 | µg/L | U | MS-A049901 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 82.4 | 0.25 | 0.0048 | 0.01 | µg/L | J | MS-A049901 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 82.4 | ND | 0.09 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 82.4 | ND | 0.13 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 82.4 | ND | 0.11 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 82.4 | ND | 0.07 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 82.4 | ND | 0.09 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 82.4 | ND | 0.14 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 82.4 | - | - | - | µg/L | R | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 82.4 | 0.24 | 0.1 | 1 | µg/L | J | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 82.4 | ND | 0.08 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 82.4 | ND | 0.09 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 82.4 | ND | 0.15 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 82.4 | ND | 0.09 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 82.4 | ND | 0.1 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | 2-HEXANONE | WG | 82.4 | ND | 0.83 | 5 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | ACETONE | WG | 82.4 | - | - | - | µg/L | R | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | BENZENE | WG | 82.4 | ND | 0.11 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 82.4 | ND | 0.1 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 82.4 | ND | 0.07 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | BROMOFORM | WG | 82.4 | ND | 0.19 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | BROMOMETHANE | WG | 82.4 | ND | 0.15 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 82.4 | ND | 0.08 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 82.4 | ND | 0.08 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | CHLOROBENZENE | WG | 82.4 | ND | 0.1 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | CHLOROETHANE | WG | 82.4 | ND | 0.08 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | CHLOROFORM | WG | 82.4 | 1.2 | 0.08 | 1 | µg/L | | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | CHLOROMETHANE | WG | 82.4 | ND | 0.1 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 82.4 | ND | 0.08 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 82.4 | ND | 0.07 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 82.4 | ND | 0.09 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | ETHYLBENZENE | WG | 82.4 | ND | 0.1 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 82.4 | - | - | - | µg/L | R | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 82.4 | ND | 0.72 | 5 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 82.4 | ND | 0.09 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 82.4 | ND | 0.61 | 10 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | STYRENE | WG | 82.4 | ND | 0.12 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 82.4 | ND | 0.11 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | TOLUENE | WG | 82.4 | ND | 0.09 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 82.4 | ND | 0.09 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 82.4 | ND | 0.08 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 82.4 | ND | 0.09 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 82.4 | ND | 0.08 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02D | ECMWSNP02D- | 12/15/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 82.4 | ND | 0.11 | 1 | µg/L | U | MS-A049902 |
| ECMWSNP02S | ECMWSNP02S- | 11/1/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 47.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A042802 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 47.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A049903 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 47.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A049903 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 47.5 | ND | 0.09 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 47.5 | ND | 0.13 | 1 | µg/L | U | MS-A049904 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 47.5 | ND | 0.11 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 47.5 | ND | 0.07 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 47.5 | ND | 0.09 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 47.5 | ND | 0.14 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 47.5 | - | - | - | µg/L | R | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 47.5 | ND | 0.1 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 47.5 | ND | 0.08 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 47.5 | ND | 0.09 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 47.5 | ND | 0.15 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 47.5 | ND | 0.09 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 47.5 | ND | 0.1 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | 2-HEXANONE | WG | 47.5 | ND | 0.83 | 5 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | ACETONE | WG | 47.5 | - | - | - | µg/L | R | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | BENZENE | WG | 47.5 | ND | 0.11 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 47.5 | ND | 0.1 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 47.5 | ND | 0.07 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | BROMOFORM | WG | 47.5 | ND | 0.19 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | BROMOMETHANE | WG | 47.5 | ND | 0.15 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 47.5 | ND | 0.08 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 47.5 | ND | 0.08 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | CHLOROBENZENE | WG | 47.5 | ND | 0.1 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | CHLOROETHANE | WG | 47.5 | ND | 0.08 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | CHLOROFORM | WG | 47.5 | ND | 0.08 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | CHLOROMETHANE | WG | 47.5 | ND | 0.1 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 47.5 | ND | 0.08 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 47.5 | ND | 0.07 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 47.5 | ND | 0.09 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | ETHYLBENZENE | WG | 47.5 | ND | 0.1 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 47.5 | - | - | - | µg/L | R | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 47.5 | ND | 0.72 | 5 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 47.5 | ND | 0.09 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 47.5 | ND | 0.78 | 10 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | STYRENE | WG | 47.5 | ND | 0.12 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 47.5 | ND | 0.11 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | TOLUENE | WG | 47.5 | ND | 0.09 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 47.5 | ND | 0.09 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 47.5 | ND | 0.08 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 47.5 | ND | 0.09 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 47.5 | ND | 0.08 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP02S | ECMWSNP02S- | 12/15/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 47.5 | ND | 0.11 | 1 | µg/L | U | MS-A049904 |
| ECMWSNP03D | ECMWSNP03D- | 11/1/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 82.4 | ND | 0.005 | 0.01 | µg/L | U | MS-A042901 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 82.4 | ND | 0.0056 | 0.01 | µg/L | U | MS-A049905 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 82.4 | ND | 0.0048 | 0.01 | µg/L | U | MS-A049905 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 82.4 | ND | 0.09 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 82.4 | ND | 0.13 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 82.4 | ND | 0.11 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 82.4 | ND | 0.07 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 82.4 | ND | 0.09 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 82.4 | ND | 0.14 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 82.4 | - | - | - | µg/L | R | MS-A049906 |

## Appendix D
## Analytical Laboratory Results
## October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 82.4 | ND | 0.1 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 82.4 | ND | 0.08 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 82.4 | ND | 0.09 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 82.4 | ND | 0.15 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 82.4 | ND | 0.09 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 82.4 | ND | 0.1 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | 2-HEXANONE | WG | 82.4 | ND | 0.83 | 5 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | ACETONE | WG | 82.4 | - | - | - | µg/L | R | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | BENZENE | WG | 82.4 | ND | 0.11 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 82.4 | ND | 0.1 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 82.4 | ND | 0.07 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | BROMOFORM | WG | 82.4 | ND | 0.19 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | BROMOMETHANE | WG | 82.4 | ND | 0.15 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 82.4 | ND | 0.08 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 82.4 | ND | 0.08 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | CHLOROBENZENE | WG | 82.4 | ND | 0.1 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | CHLOROETHANE | WG | 82.4 | ND | 0.08 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | CHLOROFORM | WG | 82.4 | ND | 0.08 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | CHLOROMETHANE | WG | 82.4 | ND | 0.1 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 82.4 | ND | 0.08 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 82.4 | ND | 0.07 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 82.4 | ND | 0.09 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | ETHYLBENZENE | WG | 82.4 | ND | 0.1 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 82.4 | - | - | - | µg/L | R | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 82.4 | ND | 0.72 | 5 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 82.4 | ND | 0.09 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 82.4 | ND | 0.55 | 10 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | STYRENE | WG | 82.4 | ND | 0.12 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 82.4 | ND | 0.11 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | TOLUENE | WG | 82.4 | ND | 0.09 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 82.4 | ND | 0.09 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 82.4 | ND | 0.08 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 82.4 | ND | 0.09 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 82.4 | ND | 0.08 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03D | ECMWSNP03D- | 12/15/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 82.4 | ND | 0.11 | 1 | µg/L | U | MS-A049906 |
| ECMWSNP03S | ECMWSNP03S- | 11/1/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 42.5 | ND | 0.005 | 0.01 | µg/L | U | MS-A042902 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | E504 | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 42.5 | ND | 0.0056 | 0.01 | µg/L | U | MS-A049907 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 42.5 | ND | 0.0048 | 0.01 | µg/L | U | MS-A049907 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | 1,1,1-TRICHLOROETHANE | WG | 42.5 | ND | 0.09 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | 1,1,2,2-TETRACHLOROETHANE | WG | 42.5 | ND | 0.13 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | 1,1,2-TRICHLOROETHANE | WG | 42.5 | ND | 0.11 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | 1,1-DICHLOROETHANE | WG | 42.5 | ND | 0.07 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | 1,1-DICHLOROETHENE | WG | 42.5 | ND | 0.09 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | 1,2,4-TRICHLOROBENZENE | WG | 42.5 | ND | 0.14 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | 1,2-DIBROMO-3-CHLOROPROPANE | WG | 42.5 | - | - | - | µg/L | R | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | 1,2-DIBROMOETHANE (EDB) | WG | 42.5 | ND | 0.1 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROBENZENE | WG | 42.5 | ND | 0.08 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROETHANE | WG | 42.5 | ND | 0.09 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | 1,2-DICHLOROPROPANE | WG | 42.5 | ND | 0.15 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | 1,3-DICHLOROBENZENE | WG | 42.5 | ND | 0.09 | 1 | µg/L | U | MS-A049908 |

# Appendix D
# Analytical Laboratory Results
# October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | 1,4-DICHLOROBENZENE | WG | 42.5 | ND | 0.1 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | 2-HEXANONE | WG | 42.5 | ND | 0.83 | 5 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | ACETONE | WG | 42.5 | - | - | - | µg/L | R | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | BENZENE | WG | 42.5 | ND | 0.11 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | BROMOCHLOROMETHANE | WG | 42.5 | ND | 0.1 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | BROMODICHLOROMETHANE | WG | 42.5 | ND | 0.07 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | BROMOFORM | WG | 42.5 | ND | 0.19 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | BROMOMETHANE | WG | 42.5 | ND | 0.15 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | CARBON DISULFIDE | WG | 42.5 | ND | 0.08 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | CARBON TETRACHLORIDE | WG | 42.5 | ND | 0.08 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | CHLOROBENZENE | WG | 42.5 | ND | 0.1 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | CHLOROETHANE | WG | 42.5 | ND | 0.08 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | CHLOROFORM | WG | 42.5 | ND | 0.08 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | CHLOROMETHANE | WG | 42.5 | ND | 0.1 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | CIS-1,2-DICHLOROETHENE | WG | 42.5 | ND | 0.08 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | CIS-1,3-DICHLOROPROPENE | WG | 42.5 | ND | 0.07 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | DIBROMOCHLOROMETHANE | WG | 42.5 | ND | 0.09 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | ETHYLBENZENE | WG | 42.5 | ND | 0.1 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | METHYL ETHYL KETONE (2-BUTANONE) | WG | 42.5 | - | - | - | µg/L | R | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | METHYL ISOBUTYL KETONE (4-METHYL-2- | WG | 42.5 | ND | 0.72 | 5 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | METHYL-TERT-BUTYL-ETHER (MTBE) | WG | 42.5 | ND | 0.09 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | METHYLENE CHLORIDE | WG | 42.5 | ND | 0.58 | 10 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | STYRENE | WG | 42.5 | ND | 0.12 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | TETRACHLOROETHENE(PCE) | WG | 42.5 | ND | 0.11 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | TOLUENE | WG | 42.5 | ND | 0.09 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | TRANS-1,2-DICHLOROETHENE | WG | 42.5 | ND | 0.09 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | TRANS-1,3-DICHLOROPROPENE | WG | 42.5 | ND | 0.08 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | TRICHLOROETHENE(TCE) | WG | 42.5 | ND | 0.09 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | VINYL CHLORIDE | WG | 42.5 | ND | 0.08 | 1 | µg/L | U | MS-A049908 |
| ECMWSNP03S | ECMWSNP03S- | 12/15/2000 | CVOL | N1 | XYLENES, TOTAL | WG | 42.5 | ND | 0.11 | 1 | µg/L | U | MS-A049908 |
| ECPTP01 | ECPTP01- | 11/14/2000 | A4500B | N1 | NITROGEN, NITRITE | WS | 3 | ND | 1.4 | 4.6 | µg/L | U | MS-A035101 |
| ECPTP01 | ECPTP01- | 11/14/2000 | A4500E | N1 | PHOSPHORUS, TOTAL $PO_4$ (AS P) | WS | 3 | ND | 0.6 | 2 | µg/L | U | MS-A035101 |
| ECPTP01 | ECPTP01- | 11/14/2000 | A4500F | N1 | NITROGEN, NITRATE (AS N) | WS | 3 | ND | 22.2 | 65.5 | µg/L | U | MS-A035101 |
| ECPTP01 | ECPTP01- | 11/14/2000 | A4500H | N1 | NITROGEN, AMMONIA (AS N) | WS | 3 | 52.6 | 5 | 10 | µg/L | | MS-A035101 |
| ECPTP01 | ECPTP01- | 11/14/2000 | E310.1 | N1 | ALKALINITY, TOTAL (AS $CaCO_3$) | WS | 3 | ND | 15.8 | 16.5 | MG/L | U | MS-A035201 |
| ECPTP01 | ECPTP01- | 11/14/2000 | MCTNP | N1 | NITROGEN | WS | 3 | ND | 246 | 1160 | µg/L | U | MS-A035101 |
| ECPTP01 | ECPTP01- | 11/14/2000 | MCTNP | N1 | PHOSPHORUS, TOTAL (AS P) | WS | 3 | 4.9 | 1.5 | 3 | µg/L | | MS-A035101 |
| ECPTP01 | ECPTP01- | 11/14/2000 | A10200H | N1 | CHLOROPHYLL A | WS | 3 | 2.7 | 0.1 | 0.1 | µg/L | | MS-A035102 |
| ECPTP01 | ECPTP01- | 11/14/2000 | E415.1 | N1 | TOTAL ORGANIC CARBON | WS | 3 | 2.2 | 0.43 | 1 | MG/L | | MS-A035202 |
| ECPTP04 | ECPTP04- | 11/14/2000 | A4500B | N1 | NITROGEN, NITRITE | WS | 3 | ND | 1.6 | 4.6 | µg/L | U | MS-A035301 |
| ECPTP04 | ECPTP04-FD | 11/14/2000 | A4500B | FD1 | NITROGEN, NITRITE | WS | 3 | ND | 1.4 | 4.6 | µg/L | U | MS-A035303 |
| ECPTP04 | ECPTP04- | 11/14/2000 | A4500E | N1 | PHOSPHORUS, TOTAL $PO_4$ (AS P) | WS | 3 | ND | 0.6 | 2 | µg/L | U | MS-A035301 |
| ECPTP04 | ECPTP04-FD | 11/14/2000 | A4500E | FD1 | PHOSPHORUS, TOTAL $PO_4$ (AS P) | WS | 3 | 0.6 | 0.6 | 2 | µg/L | J | MS-A035303 |
| ECPTP04 | ECPTP04- | 11/14/2000 | A4500F | N1 | NITROGEN, NITRATE (AS N) | WS | 3 | ND | 17.2 | 65.5 | µg/L | U | MS-A035301 |
| ECPTP04 | ECPTP04-FD | 11/14/2000 | A4500F | FD1 | NITROGEN, NITRATE (AS N) | WS | 3 | ND | 17.7 | 65.5 | µg/L | U | MS-A035303 |
| ECPTP04 | ECPTP04- | 11/14/2000 | A4500H | N1 | NITROGEN, AMMONIA (AS N) | WS | 3 | 51.4 | 5 | 10 | µg/L | | MS-A035301 |
| ECPTP04 | ECPTP04-FD | 11/14/2000 | A4500H | FD1 | NITROGEN, AMMONIA (AS N) | WS | 3 | 52.5 | 5 | 10 | µg/L | | MS-A035303 |
| ECPTP04 | ECPTP04- | 11/14/2000 | E310.1 | N1 | ALKALINITY, TOTAL (AS $CaCO_3$) | WS | 3 | ND | 5.7 | 16.5 | MG/L | UJ | MS-A035401 |
| ECPTP04 | ECPTP04-FD | 11/14/2000 | E310.1 | FD1 | ALKALINITY, TOTAL (AS $CaCO_3$) | WS | 3 | 19.5 | 2.2 | 5 | MG/L | J | MS-A035403 |
| ECPTP04 | ECPTP04- | 11/14/2000 | MCTNP | N1 | NITROGEN | WS | 3 | ND | 252 | 1160 | µg/L | U | MS-A035301 |

## Appendix D
## Analytical Laboratory Results
## October 2000 - January 2001

| Location | Sample ID | Date | Method | Type | Analyte | Matrix | Depth | Result | DL | RL | Units | Qual | Control No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ECPTP04 | ECPTP04-FD | 11/14/2000 | MCTNP | FD1 | NITROGEN | WS | 3 | ND | 263 | 1160 | µg/L | U | MS-A035303 |
| ECPTP04 | ECPTP04- | 11/14/2000 | MCTNP | N1 | PHOSPHORUS, TOTAL (AS P) | WS | 3 | 6.1 | 1.5 | 3 | µg/L | | MS-A035301 |
| ECPTP04 | ECPTP04-FD | 11/14/2000 | MCTNP | FD1 | PHOSPHORUS, TOTAL (AS P) | WS | 3 | 6.1 | 1.5 | 3 | µg/L | | MS-A035303 |
| ECPTP04 | ECPTP04- | 11/14/2000 | A10200H | N1 | CHLOROPHYLL A | WS | 3 | 2.1 | 0.1 | 0.1 | µg/L | | MS-A035302 |
| ECPTP04 | ECPTP04-FD | 11/14/2000 | A10200H | FD1 | CHLOROPHYLL A | WS | 3 | 1.8 | 0.1 | 0.1 | µg/L | | MS-A035304 |
| ECPTP04 | ECPTP04- | 11/14/2000 | E415.1 | N1 | TOTAL ORGANIC CARBON | WS | 3 | 2.3 | 0.43 | 1 | MG/L | | MS-A035402 |
| ECPTP04 | ECPTP04-FD | 11/14/2000 | E415.1 | FD1 | TOTAL ORGANIC CARBON | WS | 3 | 2.3 | 0.43 | 1 | MG/L | | MS-A035404 |
| ECPTP05 | ECPTP05- | 11/14/2000 | A4500B | N1 | NITROGEN, NITRITE | WS | 3 | ND | 1.6 | 4.6 | µg/L | U | MS-A035501 |
| ECPTP05 | ECPTP05- | 11/14/2000 | A4500E | N1 | PHOSPHORUS, TOTAL $PO_4$ (AS P) | WS | 3 | ND | 0.6 | 2 | µg/L | U | MS-A035501 |
| ECPTP05 | ECPTP05- | 11/14/2000 | A4500F | N1 | NITROGEN, NITRATE (AS N) | WS | 3 | ND | 19.9 | 65.5 | µg/L | U | MS-A035501 |
| ECPTP05 | ECPTP05- | 11/14/2000 | A4500H | N1 | NITROGEN, AMMONIA (AS N) | WS | 3 | 55.2 | 5 | 10 | µg/L | | MS-A035501 |
| ECPTP05 | ECPTP05- | 11/14/2000 | E310.1 | N1 | ALKALINITY, TOTAL (AS $CaCO_3$) | WS | 3 | ND | 15.5 | 16.5 | MG/L | U | MS-A035601 |
| ECPTP05 | ECPTP05- | 11/14/2000 | MCTNP | N1 | NITROGEN | WS | 3 | ND | 555 | 1160 | µg/L | U | MS-A035501 |
| ECPTP05 | ECPTP05- | 11/14/2000 | MCTNP | N1 | PHOSPHORUS, TOTAL (AS P) | WS | 3 | 5.7 | 1.5 | 3 | µg/L | | MS-A035501 |
| ECPTP05 | ECPTP05- | 11/14/2000 | A10200H | N1 | CHLOROPHYLL A | WS | 3 | 3.2 | 0.1 | 0.1 | µg/L | | MS-A035502 |
| ECPTP05 | ECPTP05- | 11/14/2000 | E415.1 | N1 | TOTAL ORGANIC CARBON | WS | 3 | 2.3 | 0.43 | 1 | MG/L | | MS-A035602 |
| J3P7 | J3P7-01 | 1/3/2001 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 30 | ND | 0.005 | 0.01 | µg/L | U | MS-A051501 |
| J3P7 | J3P7-02 | 1/3/2001 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 40 | ND | 0.005 | 0.01 | µg/L | U | MS-A051502 |
| J3P7 | J3P7-03 | 1/3/2001 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 50 | ND | 0.005 | 0.01 | µg/L | U | MS-A051503 |
| J3P7 | J3P7-04 | 1/3/2001 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 60 | ND | 0.005 | 0.01 | µg/L | U | MS-A051504 |
| J3P7 | J3P7-05 | 1/4/2001 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 70 | ND | 0.005 | 0.01 | µg/L | U | MS-A051505 |
| J3P7 | J3P7-06 | 1/4/2001 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 80 | ND | 0.005 | 0.01 | µg/L | U | MS-A051506 |
| J3P7 | J3P7-07 | 1/4/2001 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 90 | ND | 0.005 | 0.01 | µg/L | U | MS-A051601 |
| J3P7 | J3P7-08 | 1/4/2001 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 100 | 0.019 | 0.005 | 0.01 | µg/L | | MS-A051602 |
| J3P7 | J3P7-09 | 1/4/2001 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 110 | 0.012 | 0.005 | 0.01 | µg/L | | MS-A051603 |
| J3P7 | J3P7-10 | 1/4/2001 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 120 | ND | 0.005 | 0.01 | µg/L | U | MS-A051604 |
| J3P7 | J3P7-11 | 1/4/2001 | E504 | N1 | 1,2-DIBROMOETHANE (EDB) | WA | 130 | ND | 0.005 | 0.01 | µg/L | U | MS-A051605 |

Data Source: Jacobs Engineering Group Inc., 20 March 2001, Site Environmental Evaluation (SEE) database

DL = detection limit
FD1 = field duplicate
J = estimated result
mg/L = milligrams per liter
N1 = native sample
ND = nondetect
Qual = qualifier
R = rejected data point

RL = reporting limit
U = nondetect
UJ = estimated nondetect
WA = borewater from drilling
WG = groundwater
WS = surface water
WW = wastewater
µg/L = micrograms per liter

# APPENDIX E

# Chemical Data Screen, Groundwater and Sediment

**Appendix E-1**
**Comparison of Detected Concentrations in Groundwater at FS-12 to Drinking Water Standards**
**January - December 2000**

| Location Identification | Date | Depth (feet) | Method | Analyte | Result | Qualifier | Units | DL | RL | Standard (µg/L) | Type | Standard Exceeded ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90EW0002 | 26-Oct-00 | 116 | E504 | 1,2-DIBROMOETHANE (EDB) | 0.007 | J | µg/L | 0.005 | 0.01 | 0.02 | MMCL | No |
| 90EW0006 | 10-May-00 | 152.75 | C200.7 | BARIUM (TOTAL) | 2.9 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90EW0006 | 10-May-00 | 152.75 | C200.7 | CALCIUM (TOTAL) | 2080 | J | µg/L | 46.6 | 5000 | NA | | |
| 90EW0006 | 10-May-00 | 152.75 | C200.7 | MAGNESIUM (TOTAL) | 1260 | J | µg/L | 43.7 | 5000 | NA | | |
| 90EW0006 | 10-May-00 | 152.75 | C200.7 | SODIUM (TOTAL) | 6510 | | µg/L | 435 | 5000 | 20000 | ORSG | No |
| 90EW0006 | 10-May-00 | 152.75 | E160.1 | TOTAL DISSOLVED SOLIDS | 50 | | mg/L | 4.9 | 10 | 500000 | SMCL | No |
| 90EW0006 | 10-May-00 | 152.75 | E415.1 | TOTAL ORGANIC CARBON | 0.5 | J | mg/L | 0.43 | 1 | NA | | |
| 90EW0006 | 10-May-00 | 152.75 | C200.7 | ZINC (TOTAL) | 44.9 | | µg/L | 0.4 | 20 | 5000 | SMCL | No |
| 90EW0007 | 11-May-00 | 163.78 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.035** | | µg/L | 0.0051 | 0.01 | 0.02 | MMCL | Yes |
| 90EW0007 | 11-May-00 | 163.78 | C200.7 | BARIUM (TOTAL) | 2.8 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90EW0007 | 11-May-00 | 163.78 | C200.7 | CALCIUM (TOTAL) | 2490 | J | µg/L | 46.6 | 5000 | NA | | |
| 90EW0007 | 11-May-00 | 163.78 | C200.7 | MAGNESIUM (TOTAL) | 1340 | J | µg/L | 43.7 | 5000 | NA | | |
| 90EW0007 | 11-May-00 | 163.78 | C200.7 | POTASSIUM (TOTAL) | 631 | J | µg/L | 24.1 | 5000 | NA | | |
| 90EW0007 | 11-May-00 | 163.78 | C200.7 | SODIUM (TOTAL) | 6970 | | µg/L | 435 | 5000 | 20000 | ORSG | No |
| 90EW0007 | 11-May-00 | 163.78 | E415.1 | TOTAL ORGANIC CARBON | 0.61 | J | mg/L | 0.43 | 1 | NA | | |
| 90EW0007 | 11-May-00 | 163.78 | C200.7 | ZINC (TOTAL) | 30.5 | | µg/L | 0.4 | 20 | 5000 | SMCL | No |
| 90EW0007 | 15-Dec-00 | 163.78 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.04** | | µg/L | 0.0048 | 0.01 | 0.02 | MMCL | Yes |
| 90EW0007 | 15-Dec-00 | 163.78 | CVOL | CHLOROFORM | 1.2 | | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90EW0008 | 11-May-00 | 163.25 | CVOL | 1,2-DIBROMOETHANE (EDB) | **0.6** | J | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90EW0008 | 11-May-00 | 163.25 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.75** | | µg/L | 0.01 | 0.02 | 0.02 | MMCL | Yes |
| 90EW0008 | 11-May-00 | 163.25 | C200.7 | ARSENIC (TOTAL) | 3.3 | J | µg/L | 2.5 | 10 | 50 | MCL, MMCL | No |
| 90EW0008 | 11-May-00 | 163.25 | C200.7 | BARIUM (TOTAL) | 3.2 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90EW0008 | 11-May-00 | 163.25 | CVOL | BENZENE | 0.56 | J | µg/L | 0.11 | 1 | 5 | MCL, MMCL | No |
| 90EW0008 | 11-May-00 | 163.25 | C200.7 | CALCIUM (TOTAL) | 2310 | J | µg/L | 46.6 | 5000 | NA | | |
| 90EW0008 | 11-May-00 | 163.25 | C200.7 | MAGNESIUM (TOTAL) | 1330 | J | µg/L | 43.7 | 5000 | NA | | |
| 90EW0008 | 11-May-00 | 163.25 | C200.7 | SODIUM (TOTAL) | 6800 | | µg/L | 435 | 5000 | 20000 | ORSG | No |
| 90EW0008 | 11-May-00 | 163.25 | E415.1 | TOTAL ORGANIC CARBON | 0.56 | J | mg/L | 0.43 | 1 | NA | | |
| 90EW0008 | 11-May-00 | 163.25 | C200.7 | ZINC (TOTAL) | 30.7 | J | µg/L | 0.4 | 20 | 5000 | SMCL | No |
| 90EW0008 | 15-Dec-00 | 163.25 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.45** | J | µg/L | 0.0096 | 0.02 | 0.02 | MMCL | Yes |
| 90EW0008 | 15-Dec-00 | 163.25 | CVOL | 1,2-DIBROMOETHANE (EDB) | **0.45** | J | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90EW0008 | 15-Dec-00 | 163.25 | CVOL | CHLOROFORM | 1.5 | | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90EW0009 | 16-May-00 | 172.58 | CVOL | 1,2-DIBROMOETHANE (EDB) | **3.4** | J | µg/L | 1 | 10 | 0.02 | MMCL | Yes |
| 90EW0009 | 16-May-00 | 172.58 | E504 | 1,2-DIBROMOETHANE (EDB) | **4.8** | | µg/L | 0.1 | 0.2 | 0.02 | MMCL | Yes |
| 90EW0009 | 16-May-00 | 172.58 | CVOL | BENZENE | **77** | | µg/L | 1.1 | 10 | 5 | MCL, MMCL | Yes |
| 90EW0009 | 16-May-00 | 172.58 | C200.7 | CALCIUM (TOTAL) | 2390 | J | µg/L | 46.6 | 5000 | NA | | |
| 90EW0009 | 16-May-00 | 172.58 | C200.7 | MAGNESIUM (TOTAL) | 1310 | J | µg/L | 43.7 | 5000 | NA | | |
| 90EW0009 | 16-May-00 | 172.58 | C200.7 | MANGANESE (TOTAL) | **63.1** | | µg/L | 1 | 15 | 50 | SMCL | Yes |
| 90EW0009 | 16-May-00 | 172.58 | C200.7 | NICKEL (TOTAL) | 2.9 | J | µg/L | 1.7 | 40 | 100 | ORSG | No |
| 90EW0009 | 16-May-00 | 172.58 | C200.7 | POTASSIUM (TOTAL) | 617 | J | µg/L | 24.1 | 5000 | NA | | |
| 90EW0009 | 16-May-00 | 172.58 | C200.7 | SODIUM (TOTAL) | 6700 | | µg/L | 435 | 5000 | 20000 | ORSG | No |
| 90EW0009 | 16-May-00 | 172.58 | E160.1 | TOTAL DISSOLVED SOLIDS | 46 | | mg/L | 4.9 | 10 | 500000 | SMCL | No |
| 90EW0009 | 16-May-00 | 172.58 | E415.1 | TOTAL ORGANIC CARBON | 0.65 | J | mg/L | 0.43 | 1 | NA | | |
| 90EW0009 | 16-May-00 | 172.58 | C200.7 | ZINC (TOTAL) | 169 | | µg/L | 0.4 | 20 | 5000 | SMCL | No |
| 90EW0009 | 15-Dec-00 | 172.58 | CVOL | 1,2-DIBROMOETHANE (EDB) | **1** | | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90EW0009 | 15-Dec-00 | 172.58 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.1** | J | µg/L | 0.024 | 0.05 | 0.02 | MMCL | Yes |
| 90EW0009 | 15-Dec-00 | 172.58 | CVOL | BENZENE | **6** | | µg/L | 0.11 | 1 | 5 | MCL, MMCL | Yes |

| Location Identification | Date | Depth (feet) | Method | Analyte | Result | Qualifier | Units | DL | RL | Standard (µg/L) | Type | Standard Exceeded ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90EW0009 | 15-Dec-00 | 172.58 | CVOL | CHLOROFORM | 1 | | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90EW0010 | 12-May-00 | 159.5 | CVOL | 1,2-DIBROMOETHANE (EDB) | **1.4** | J | µg/L | 0.4 | 4 | 0.02 | MMCL | Yes |
| 90EW0010 | 12-May-00 | 159.5 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.5** | | µg/L | 0.026 | 0.05 | 0.02 | MMCL | Yes |
| 90EW0010 | 12-May-00 | 159.5 | C200.7 | BARIUM (TOTAL) | 4.5 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90EW0010 | 12-May-00 | 159.5 | CVOL | BENZENE | **46** | | µg/L | 0.44 | 4 | 5 | MCL, MMCL | Yes |
| 90EW0010 | 12-May-00 | 159.5 | C200.7 | CALCIUM (TOTAL) | 3730 | J | µg/L | 46.6 | 5000 | NA | | |
| 90EW0010 | 12-May-00 | 159.5 | C200.7 | COBALT (TOTAL) | 1.7 | J | µg/L | 0.7 | 50 | NA | | No |
| 90EW0010 | 12-May-00 | 159.5 | C200.7 | MAGNESIUM (TOTAL) | 2450 | J | µg/L | 43.7 | 5000 | NA | | |
| 90EW0010 | 12-May-00 | 159.5 | C200.7 | MANGANESE (TOTAL) | **242** | | µg/L | 1 | 15 | 50 | SMCL | Yes |
| 90EW0010 | 12-May-00 | 159.5 | C200.7 | SODIUM (TOTAL) | 6910 | | µg/L | 435 | 5000 | 20000 | ORSG | No |
| 90EW0010 | 12-May-00 | 159.5 | E160.1 | TOTAL DISSOLVED SOLIDS | 38 | | mg/L | 4.9 | 10 | 500000 | SMCL | No |
| 90EW0010 | 12-May-00 | 159.5 | E415.1 | TOTAL ORGANIC CARBON | 0.93 | J | mg/L | 0.43 | 1 | NA | | |
| 90EW0010 | 12-May-00 | 159.5 | C200.7 | ZINC (TOTAL) | 44.4 | | µg/L | 0.4 | 20 | 5000 | SMCL | No |
| 90EW0011 | 12-May-00 | 162.35 | CVOL | 1,2-DIBROMOETHANE (EDB) | **3.8** | | µg/L | 0.2 | 2 | 0.02 | MMCL | Yes |
| 90EW0011 | 12-May-00 | 162.35 | E504 | 1,2-DIBROMOETHANE (EDB) | **4.4** | | µg/L | 0.1 | 0.2 | 0.02 | MMCL | Yes |
| 90EW0011 | 12-May-00 | 162.35 | C200.7 | BARIUM (TOTAL) | 4.2 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90EW0011 | 12-May-00 | 162.35 | CVOL | BENZENE | **28** | | µg/L | 0.22 | 2 | 5 | MCL, MMCL | Yes |
| 90EW0011 | 12-May-00 | 162.35 | C200.7 | CALCIUM (TOTAL) | 3840 | J | µg/L | 46.6 | 5000 | NA | | |
| 90EW0011 | 12-May-00 | 162.35 | C200.7 | COBALT (TOTAL) | 2.7 | J | µg/L | 0.7 | 50 | NA | | No |
| 90EW0011 | 12-May-00 | 162.35 | C200.7 | MAGNESIUM (TOTAL) | 2210 | J | µg/L | 43.7 | 5000 | NA | | |
| 90EW0011 | 12-May-00 | 162.35 | C200.7 | MANGANESE (TOTAL) | **158** | | µg/L | 1 | 15 | 50 | SMCL | Yes |
| 90EW0011 | 12-May-00 | 162.35 | C200.7 | SODIUM (TOTAL) | 7340 | | µg/L | 435 | 5000 | 20000 | ORSG | No |
| 90EW0011 | 12-May-00 | 162.35 | E160.1 | TOTAL DISSOLVED SOLIDS | 40 | | mg/L | 4.9 | 10 | 500000 | SMCL | No |
| 90EW0011 | 12-May-00 | 162.35 | E415.1 | TOTAL ORGANIC CARBON | 0.81 | J | mg/L | 0.43 | 1 | NA | | |
| 90EW0011 | 12-May-00 | 162.35 | C200.7 | ZINC (TOTAL) | 50 | | µg/L | 0.4 | 20 | 5000 | SMCL | No |
| 90EW0011 | 15-Dec-00 | 162.35 | E504 | 1,2-DIBROMOETHANE (EDB) | **2.1** | J | µg/L | 0.048 | 0.1 | 0.02 | MMCL | Yes |
| 90EW0011 | 15-Dec-00 | 162.35 | CVOL | 1,2-DIBROMOETHANE (EDB) | **2.2** | | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90EW0011 | 15-Dec-00 | 162.35 | CVOL | BENZENE | **13** | | µg/L | 0.11 | 1 | 5 | MCL, MMCL | Yes |
| 90EW0011 | 15-Dec-00 | 162.35 | CVOL | CHLOROFORM | 0.86 | J | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90EW0012 | 12-May-00 | 163.4 | CVOL | 1,2-DIBROMOETHANE (EDB) | **26** | | µg/L | 0.5 | 5 | 0.02 | MMCL | Yes |
| 90EW0012 | 12-May-00 | 163.4 | E504 | 1,2-DIBROMOETHANE (EDB) | **31** | | µg/L | 0.51 | 1 | 0.02 | MMCL | Yes |
| 90EW0012 | 12-May-00 | 163.4 | C200.7 | BARIUM (TOTAL) | 3.3 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90EW0012 | 12-May-00 | 163.4 | CVOL | BENZENE | **110** | | µg/L | 0.55 | 5 | 5 | MCL, MMCL | Yes |
| 90EW0012 | 12-May-00 | 163.4 | C200.7 | CALCIUM (TOTAL) | 3430 | J | µg/L | 46.6 | 5000 | NA | | |
| 90EW0012 | 12-May-00 | 163.4 | C200.7 | COBALT (TOTAL) | 3.1 | J | µg/L | 0.7 | 50 | NA | | No |
| 90EW0012 | 12-May-00 | 163.4 | C200.7 | COPPER (TOTAL) | 20.6 | J | µg/L | 0.8 | 25 | 1300 | MMCL | No |
| 90EW0012 | 12-May-00 | 163.4 | C200.7 | MAGNESIUM (TOTAL) | 1680 | J | µg/L | 43.7 | 5000 | NA | | |
| 90EW0012 | 12-May-00 | 163.4 | C200.7 | MANGANESE (TOTAL) | **114** | | µg/L | 1 | 15 | 50 | SMCL | Yes |
| 90EW0012 | 12-May-00 | 163.4 | C200.7 | SODIUM (TOTAL) | 7310 | | µg/L | 435 | 5000 | 20000 | ORSG | No |
| 90EW0012 | 12-May-00 | 163.4 | E160.1 | TOTAL DISSOLVED SOLIDS | 40 | | mg/L | 4.9 | 10 | 500000 | SMCL | No |
| 90EW0012 | 12-May-00 | 163.4 | E415.1 | TOTAL ORGANIC CARBON | 0.97 | J | mg/L | 0.43 | 1 | NA | | |
| 90EW0012 | 12-May-00 | 163.4 | C200.7 | ZINC (TOTAL) | 66.8 | | µg/L | 0.4 | 20 | 5000 | SMCL | No |
| 90EW0012 | 15-Dec-00 | 163.4 | CVOL | 1,2-DIBROMOETHANE (EDB) | **9.6** | | µg/L | 0.4 | 4 | 0.02 | MMCL | Yes |
| 90EW0012 | 15-Dec-00 | 163.4 | E504 | 1,2-DIBROMOETHANE (EDB) | **10** | | µg/L | 0.24 | 0.5 | 0.02 | MMCL | Yes |
| 90EW0012 | 15-Dec-00 | 163.4 | CVOL | BENZENE | **71** | | µg/L | 0.44 | 4 | 5 | MCL, MMCL | Yes |
| 90EW0013 | 12-May-00 | 171.11 | CVOL | 1,2-DIBROMOETHANE (EDB) | **12** | | µg/L | 0.5 | 5 | 0.02 | MMCL | Yes |

**Appendix E-1**
**Comparison of Detected Concentrations in Groundwater at FS-12 to Drinking Water Standards**
**January - December 2000**

| Location Identification | Date | Depth (feet) | Method | Analyte | Result | Qualifier | Units | DL | RL | Standard (µg/L) | Type | Standard Exceeded ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90EW0013 | 12-May-00 | 171.11 | E504 | 1,2-DIBROMOETHANE (EDB) | **14** | | µg/L | 0.26 | 0.5 | 0.02 | MMCL | Yes |
| 90EW0013 | 12-May-00 | 171.11 | CVOL | BENZENE | **77** | | µg/L | 0.55 | 5 | 5 | MCL, MMCL | Yes |
| 90EW0013 | 12-May-00 | 171.11 | C200.7 | CALCIUM (TOTAL) | 3120 | J | µg/L | 46.6 | 5000 | NA | | |
| 90EW0013 | 12-May-00 | 171.11 | C200.7 | COBALT (TOTAL) | 1.4 | J | µg/L | 0.7 | 50 | NA | | No |
| 90EW0013 | 12-May-00 | 171.11 | C200.7 | MAGNESIUM (TOTAL) | 1510 | J | µg/L | 43.7 | 5000 | NA | | |
| 90EW0013 | 12-May-00 | 171.11 | C200.7 | MANGANESE (TOTAL) | **59.6** | | µg/L | 1 | 15 | 50 | SMCL | Yes |
| 90EW0013 | 12-May-00 | 171.11 | C200.7 | SODIUM (TOTAL) | 7450 | | µg/L | 435 | 5000 | 20000 | ORSG | No |
| 90EW0013 | 12-May-00 | 171.11 | E160.1 | TOTAL DISSOLVED SOLIDS | 48 | | mg/L | 4.9 | 10 | 500000 | SMCL | No |
| 90EW0013 | 12-May-00 | 171.11 | E415.1 | TOTAL ORGANIC CARBON | 0.91 | J | mg/L | 0.43 | 1 | NA | | |
| 90EW0013 | 12-May-00 | 171.11 | C200.7 | ZINC (TOTAL) | 108 | | µg/L | 0.4 | 20 | 5000 | SMCL | No |
| 90EW0013 | 18-Dec-00 | 171.11 | CVOL | 1,2-DIBROMOETHANE (EDB) | **4.5** | | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90EW0013 | 18-Dec-00 | 171.11 | E504 | 1,2-DIBROMOETHANE (EDB) | **4.7** | | µg/L | 0.096 | 0.2 | 0.02 | MMCL | Yes |
| 90EW0013 | 18-Dec-00 | 171.11 | CVOL | BENZENE | **17** | | µg/L | 0.11 | 1 | 5 | MCL, MMCL | Yes |
| 90EW0013 | 18-Dec-00 | 171.11 | CVOL | CHLOROFORM | 1.1 | | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90EW0014 | 12-May-00 | 176.8 | CVOL | 1,2-DIBROMOETHANE (EDB) | **2.4** | | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90EW0014 | 12-May-00 | 176.8 | E504 | 1,2-DIBROMOETHANE (EDB) | **2.5** | | µg/L | 0.051 | 0.1 | 0.02 | MMCL | Yes |
| 90EW0014 | 12-May-00 | 176.8 | C200.7 | BARIUM (TOTAL) | 5.4 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90EW0014 | 12-May-00 | 176.8 | CVOL | BENZENE | 1.6 | | µg/L | 0.11 | 1 | 5 | MCL, MMCL | No |
| 90EW0014 | 12-May-00 | 176.8 | C200.7 | CALCIUM (TOTAL) | 2400 | J | µg/L | 46.6 | 5000 | NA | | |
| 90EW0014 | 12-May-00 | 176.8 | C200.7 | COBALT (TOTAL) | 0.8 | J | µg/L | 0.7 | 50 | NA | | No |
| 90EW0014 | 12-May-00 | 176.8 | C200.7 | MAGNESIUM (TOTAL) | 1300 | J | µg/L | 43.7 | 5000 | NA | | |
| 90EW0014 | 12-May-00 | 176.8 | C200.7 | MANGANESE (TOTAL) | 48.3 | | µg/L | 1 | 15 | 50 | SMCL | No |
| 90EW0014 | 12-May-00 | 176.8 | C200.7 | SODIUM (TOTAL) | 6890 | | µg/L | 435 | 5000 | 20000 | ORSG | No |
| 90EW0014 | 12-May-00 | 176.8 | E160.1 | TOTAL DISSOLVED SOLIDS | 30 | | mg/L | 4.9 | 10 | 500000 | SMCL | No |
| 90EW0014 | 12-May-00 | 176.8 | E415.1 | TOTAL ORGANIC CARBON | 0.65 | J | mg/L | 0.43 | 1 | NA | | |
| 90EW0014 | 12-May-00 | 176.8 | C200.7 | ZINC (TOTAL) | 45.7 | | µg/L | 0.4 | 20 | 5000 | SMCL | No |
| 90EW0014 | 18-Dec-00 | 176.8 | CVOL | 1,2-DIBROMOETHANE (EDB) | **0.81** | J | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90EW0014 | 18-Dec-00 | 176.8 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.89** | | µg/L | 0.024 | 0.05 | 0.02 | MMCL | Yes |
| 90EW0014 | 18-Dec-00 | 176.8 | CVOL | BENZENE | 2.5 | | µg/L | 0.11 | 1 | 5 | MCL, MMCL | No |
| 90EW0014 | 18-Dec-00 | 176.8 | CVOL | CHLOROFORM | 1.2 | | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90EW0015 | 15-May-00 | 177.73 | CVOL | 1,2-DIBROMOETHANE (EDB) | **3.1** | | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90EW0015 | 15-May-00 | 177.73 | E504 | 1,2-DIBROMOETHANE (EDB) | **3.9** | | µg/L | 0.1 | 0.2 | 0.02 | MMCL | Yes |
| 90EW0015 | 15-May-00 | 177.73 | C200.7 | BARIUM (TOTAL) | 2.3 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90EW0015 | 15-May-00 | 177.73 | CVOL | BENZENE | 2.3 | | µg/L | 0.11 | 1 | 5 | MCL, MMCL | No |
| 90EW0015 | 15-May-00 | 177.73 | C200.7 | CALCIUM (TOTAL) | 2460 | J | µg/L | 46.6 | 5000 | NA | | |
| 90EW0015 | 15-May-00 | 177.73 | C200.7 | MAGNESIUM (TOTAL) | 1140 | J | µg/L | 43.7 | 5000 | NA | | |
| 90EW0015 | 15-May-00 | 177.73 | C200.7 | MANGANESE (TOTAL) | **64.8** | | µg/L | 1 | 15 | 50 | SMCL | Yes |
| 90EW0015 | 15-May-00 | 177.73 | C200.7 | SODIUM (TOTAL) | 6520 | | µg/L | 435 | 5000 | 20000 | ORSG | No |
| 90EW0015 | 15-May-00 | 177.73 | E160.1 | TOTAL DISSOLVED SOLIDS | 52 | | mg/L | 4.9 | 10 | 500000 | SMCL | No |
| 90EW0015 | 15-May-00 | 177.73 | E415.1 | TOTAL ORGANIC CARBON | 0.61 | J | mg/L | 0.43 | 1 | NA | | |
| 90EW0015 | 15-May-00 | 177.73 | C200.7 | ZINC (TOTAL) | 36.6 | | µg/L | 0.4 | 20 | 5000 | SMCL | No |
| 90EW0015 | 18-Dec-00 | 177.73 | CVOL | 1,2-DIBROMOETHANE (EDB) | **3.1** | | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90EW0015 | 18-Dec-00 | 177.73 | E504 | 1,2-DIBROMOETHANE (EDB) | **3.3** | | µg/L | 0.048 | 0.1 | 0.02 | MMCL | Yes |
| 90EW0015 | 18-Dec-00 | 177.73 | CVOL | BENZENE | 2.9 | | µg/L | 0.11 | 1 | 5 | MCL, MMCL | No |
| 90EW0015 | 18-Dec-00 | 177.73 | CVOL | CHLOROFORM | 1.2 | | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90EW0016 | 15-May-00 | 177.65 | CVOL | 1,2-DIBROMOETHANE (EDB) | **7.4** | J | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |

**Appendix E-1**
**Comparison of Detected Concentrations in Groundwater at FS-12 to Drinking Water Standards**
**January - December 2000**

| Location Identification | Date | Depth (feet) | Method | Analyte | Result | Qualifier | Units | DL | RL | Standard (µg/L) | Type | Standard Exceeded ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90EW0016 | 15-May-00 | 177.65 | E504 | 1,2-DIBROMOETHANE (EDB) | **8.7** | | µg/L | 0.26 | 0.5 | 0.02 | MMCL | Yes |
| 90EW0016 | 15-May-00 | 177.65 | C200.7 | BARIUM (TOTAL) | 2.4 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90EW0016 | 15-May-00 | 177.65 | CVOL | BENZENE | 0.83 | J | µg/L | 0.11 | 1 | 5 | MCL, MMCL | No |
| 90EW0016 | 15-May-00 | 177.65 | C200.7 | CALCIUM (TOTAL) | 2680 | J | µg/L | 46.6 | 5000 | NA | | |
| 90EW0016 | 15-May-00 | 177.65 | C200.7 | MAGNESIUM (TOTAL) | 1040 | J | µg/L | 43.7 | 5000 | NA | | |
| 90EW0016 | 15-May-00 | 177.65 | C200.7 | MANGANESE (TOTAL) | 12.3 | J | µg/L | 1 | 15 | 50 | SMCL | No |
| 90EW0016 | 15-May-00 | 177.65 | C200.7 | POTASSIUM (TOTAL) | 598 | J | µg/L | 24.1 | 5000 | NA | | |
| 90EW0016 | 15-May-00 | 177.65 | C200.7 | SELENIUM (TOTAL) | 2.3 | J | µg/L | 2 | 5 | 50 | MCL, MMCL | No |
| 90EW0016 | 15-May-00 | 177.65 | C200.7 | SODIUM (TOTAL) | 6810 | | µg/L | 435 | 5000 | 20000 | ORSG | No |
| 90EW0016 | 15-May-00 | 177.65 | E160.1 | TOTAL DISSOLVED SOLIDS | 44 | | mg/L | 4.9 | 10 | 500000 | SMCL | No |
| 90EW0016 | 15-May-00 | 177.65 | E415.1 | TOTAL ORGANIC CARBON | 0.54 | J | mg/L | 0.43 | 1 | NA | | |
| 90EW0016 | 15-May-00 | 177.65 | C200.7 | ZINC (TOTAL) | 30.1 | | µg/L | 0.4 | 20 | 5000 | SMCL | No |
| 90EW0016 | 18-Dec-00 | 177.65 | E504 | 1,2-DIBROMOETHANE (EDB) | **5** | | µg/L | 0.096 | 0.2 | 0.02 | MMCL | Yes |
| 90EW0016 | 18-Dec-00 | 177.65 | CVOL | 1,2-DIBROMOETHANE (EDB) | **5** | | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90EW0016 | 18-Dec-00 | 177.65 | CVOL | BENZENE | 1.3 | | µg/L | 0.11 | 1 | 5 | MCL, MMCL | No |
| 90EW0016 | 18-Dec-00 | 177.65 | CVOL | CHLOROFORM | 1.1 | | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90EW0017 | 15-May-00 | 165.82 | E504 | 1,2-DIBROMOETHANE (EDB) | **13** | | µg/L | 0.26 | 0.5 | 0.02 | MMCL | Yes |
| 90EW0017 | 15-May-00 | 165.82 | CVOL | 1,2-DIBROMOETHANE (EDB) | **13** | | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90EW0017 | 15-May-00 | 165.82 | CVOL | 1,2-DICHLOROETHANE | 0.68 | J | µg/L | 0.09 | 1 | 5 | MCL, MMCL | No |
| 90EW0017 | 15-May-00 | 165.82 | C200.7 | BARIUM (TOTAL) | 2 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90EW0017 | 15-May-00 | 165.82 | CVOL | BENZENE | 2.4 | | µg/L | 0.11 | 1 | 5 | MCL, MMCL | No |
| 90EW0017 | 15-May-00 | 165.82 | C200.7 | CALCIUM (TOTAL) | 2420 | J | µg/L | 46.6 | 5000 | NA | | |
| 90EW0017 | 15-May-00 | 165.82 | C200.7 | MAGNESIUM (TOTAL) | 1070 | J | µg/L | 43.7 | 5000 | NA | | |
| 90EW0017 | 15-May-00 | 165.82 | C200.7 | MANGANESE (TOTAL) | 36 | | µg/L | 1 | 15 | 50 | SMCL | No |
| 90EW0017 | 15-May-00 | 165.82 | C200.7 | SELENIUM (TOTAL) | 2.6 | J | µg/L | 2 | 5 | 50 | MCL, MMCL | No |
| 90EW0017 | 15-May-00 | 165.82 | C200.7 | SODIUM (TOTAL) | 6290 | | µg/L | 435 | 5000 | 20000 | ORSG | No |
| 90EW0017 | 15-May-00 | 165.82 | E160.1 | TOTAL DISSOLVED SOLIDS | 52 | | mg/L | 4.9 | 10 | 500000 | SMCL | No |
| 90EW0017 | 15-May-00 | 165.82 | E415.1 | TOTAL ORGANIC CARBON | 0.85 | J | mg/L | 0.43 | 1 | NA | | |
| 90EW0017 | 15-May-00 | 165.82 | C200.7 | ZINC (TOTAL) | 23.4 | | µg/L | 0.4 | 20 | 5000 | SMCL | No |
| 90EW0017 | 18-Dec-00 | 165.82 | E504 | 1,2-DIBROMOETHANE (EDB) | **8.7** | | µg/L | 0.096 | 0.2 | 0.02 | MMCL | Yes |
| 90EW0017 | 18-Dec-00 | 165.82 | CVOL | 1,2-DIBROMOETHANE (EDB) | **9.1** | | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90EW0017 | 18-Dec-00 | 165.82 | CVOL | BENZENE | 1.4 | | µg/L | 0.11 | 1 | 5 | MCL, MMCL | No |
| 90EW0017 | 18-Dec-00 | 165.82 | CVOL | CHLOROFORM | 1.1 | | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90EW0018 | 15-May-00 | 161.84 | CVOL | 1,2-DIBROMOETHANE (EDB) | **5.2** | | µg/L | 0.2 | 2 | 0.02 | MMCL | Yes |
| 90EW0018 | 15-May-00 | 161.84 | E504 | 1,2-DIBROMOETHANE (EDB) | **6.7** | | µg/L | 0.26 | 0.5 | 0.02 | MMCL | Yes |
| 90EW0018 | 15-May-00 | 161.84 | C200.7 | BARIUM (TOTAL) | 3.5 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90EW0018 | 15-May-00 | 161.84 | CVOL | BENZENE | **21** | | µg/L | 0.22 | 2 | 5 | MCL, MMCL | Yes |
| 90EW0018 | 15-May-00 | 161.84 | C200.7 | CALCIUM (TOTAL) | 2610 | J | µg/L | 46.6 | 5000 | NA | | |
| 90EW0018 | 15-May-00 | 161.84 | C200.7 | IRON (TOTAL) | 42.1 | J | µg/L | 28.4 | 100 | 300 | SMCL | No |
| 90EW0018 | 15-May-00 | 161.84 | C200.7 | MAGNESIUM (TOTAL) | 1710 | J | µg/L | 43.7 | 5000 | NA | | |
| 90EW0018 | 15-May-00 | 161.84 | C200.7 | MANGANESE (TOTAL) | **82.5** | | µg/L | 1 | 15 | 50 | SMCL | Yes |
| 90EW0018 | 15-May-00 | 161.84 | C200.7 | POTASSIUM (TOTAL) | 614 | J | µg/L | 24.1 | 5000 | NA | | |
| 90EW0018 | 15-May-00 | 161.84 | C200.7 | SODIUM (TOTAL) | 6710 | | µg/L | 435 | 5000 | 20000 | ORSG | No |
| 90EW0018 | 15-May-00 | 161.84 | E160.1 | TOTAL DISSOLVED SOLIDS | 62 | | mg/L | 4.9 | 10 | 500000 | SMCL | No |
| 90EW0018 | 15-May-00 | 161.84 | E415.1 | TOTAL ORGANIC CARBON | 0.63 | J | mg/L | 0.43 | 1 | NA | | |
| 90EW0018 | 15-May-00 | 161.84 | C200.7 | ZINC (TOTAL) | 256 | | µg/L | 0.4 | 20 | 5000 | SMCL | No |

**Appendix E-1**
**Comparison of Detected Concentrations in Groundwater at FS-12 to Drinking Water Standards**
**January - December 2000**

| Location Identification | Date | Depth (feet) | Method | Analyte | Result | Qualifier | Units | DL | RL | Standard (µg/L) | Type | Standard Exceeded ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90EW0018 | 18-Dec-00 | 161.84 | E504 | 1,2-DIBROMOETHANE (EDB) | **4.3** | | µg/L | 0.096 | 0.2 | 0.02 | MMCL | Yes |
| 90EW0018 | 18-Dec-00 | 161.84 | CVOL | 1,2-DIBROMOETHANE (EDB) | **4.3** | | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90EW0018 | 18-Dec-00 | 161.84 | CVOL | BENZENE | **5.3** | | µg/L | 0.11 | 1 | 5 | MCL, MMCL | Yes |
| 90EW0018 | 18-Dec-00 | 161.84 | CVOL | CHLOROFORM | 1 | | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90EW0019 | 15-May-00 | 174.5 | E504 | 1,2-DIBROMOETHANE (EDB) | **23** | | µg/L | 0.51 | 1 | 0.02 | MMCL | Yes |
| 90EW0019 | 15-May-00 | 174.5 | CVOL | 1,2-DIBROMOETHANE (EDB) | **25** | | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90EW0019 | 15-May-00 | 174.5 | CVOL | 1,2-DICHLOROETHANE | 1.8 | | µg/L | 0.09 | 1 | 5 | MCL, MMCL | No |
| 90EW0019 | 15-May-00 | 174.5 | C200.7 | BARIUM (TOTAL) | 4.5 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90EW0019 | 15-May-00 | 174.5 | CVOL | BENZENE | 4.3 | | µg/L | 0.11 | 1 | 5 | MCL, MMCL | No |
| 90EW0019 | 15-May-00 | 174.5 | C200.7 | CALCIUM (TOTAL) | 2390 | J | µg/L | 46.6 | 5000 | NA | | |
| 90EW0019 | 15-May-00 | 174.5 | C200.7 | IRON (TOTAL) | 33.3 | J | µg/L | 28.4 | 100 | 300 | SMCL | No |
| 90EW0019 | 15-May-00 | 174.5 | C200.7 | MAGNESIUM (TOTAL) | 1480 | J | µg/L | 43.7 | 5000 | NA | | |
| 90EW0019 | 15-May-00 | 174.5 | C200.7 | POTASSIUM (TOTAL) | 600 | J | µg/L | 24.1 | 5000 | NA | | |
| 90EW0019 | 15-May-00 | 174.5 | C200.7 | SODIUM (TOTAL) | 6380 | | µg/L | 435 | 5000 | 20000 | ORSG | No |
| 90EW0019 | 15-May-00 | 174.5 | E160.1 | TOTAL DISSOLVED SOLIDS | 48 | | mg/L | 4.9 | 10 | 500000 | SMCL | No |
| 90EW0019 | 15-May-00 | 174.5 | E415.1 | TOTAL ORGANIC CARBON | 0.61 | J | mg/L | 0.43 | 1 | NA | | |
| 90EW0019 | 15-May-00 | 174.5 | C200.7 | ZINC (TOTAL) | 53 | | µg/L | 0.4 | 20 | 5000 | SMCL | No |
| 90EW0019 | 19-Dec-00 | 174.5 | E504 | 1,2-DIBROMOETHANE (EDB) | **15** | | µg/L | 0.24 | 0.5 | 0.02 | MMCL | Yes |
| 90EW0019 | 19-Dec-00 | 174.5 | CVOL | 1,2-DIBROMOETHANE (EDB) | **16** | | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90EW0019 | 19-Dec-00 | 174.5 | CVOL | BENZENE | 4.2 | | µg/L | 0.11 | 1 | 5 | MCL, MMCL | No |
| 90EW0019 | 19-Dec-00 | 174.5 | CVOL | CHLOROFORM | 1.2 | | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90EW0020 | 15-May-00 | 156 | C200.7 | BARIUM (TOTAL) | 3.7 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90EW0020 | 15-May-00 | 156 | C200.7 | CALCIUM (TOTAL) | 2220 | J | µg/L | 46.6 | 5000 | NA | | |
| 90EW0020 | 15-May-00 | 156 | C200.7 | IRON (TOTAL) | 119 | | µg/L | 28.4 | 100 | 300 | SMCL | No |
| 90EW0020 | 15-May-00 | 156 | C200.7 | MAGNESIUM (TOTAL) | 1080 | J | µg/L | 43.7 | 5000 | NA | | |
| 90EW0020 | 15-May-00 | 156 | C200.7 | POTASSIUM (TOTAL) | 609 | J | µg/L | 24.1 | 5000 | NA | | |
| 90EW0020 | 15-May-00 | 156 | C200.7 | SELENIUM (TOTAL) | 2.2 | J | µg/L | 2 | 5 | 50 | MCL, MMCL | No |
| 90EW0020 | 15-May-00 | 156 | C200.7 | SODIUM (TOTAL) | 9280 | | µg/L | 435 | 5000 | 20000 | ORSG | No |
| 90EW0020 | 15-May-00 | 156 | E160.1 | TOTAL DISSOLVED SOLIDS | 54 | | mg/L | 4.9 | 10 | 500000 | SMCL | No |
| 90EW0020 | 15-May-00 | 156 | C200.7 | ZINC (TOTAL) | 37.1 | | µg/L | 0.4 | 20 | 5000 | SMCL | No |
| 90EW0021 | 16-May-00 | 160.06 | C200.7 | CALCIUM (TOTAL) | 1970 | J | µg/L | 46.6 | 5000 | NA | | |
| 90EW0021 | 16-May-00 | 160.06 | C200.7 | IRON (TOTAL) | 74.2 | J | µg/L | 28.4 | 100 | 300 | SMCL | No |
| 90EW0021 | 16-May-00 | 160.06 | C200.7 | MAGNESIUM (TOTAL) | 1090 | J | µg/L | 43.7 | 5000 | NA | | |
| 90EW0021 | 16-May-00 | 160.06 | C200.7 | SODIUM (TOTAL) | 7900 | | µg/L | 435 | 5000 | 20000 | ORSG | No |
| 90EW0021 | 16-May-00 | 160.06 | E160.1 | TOTAL DISSOLVED SOLIDS | 48 | | mg/L | 4.9 | 10 | 500000 | SMCL | No |
| 90EW0021 | 16-May-00 | 160.06 | C200.7 | ZINC (TOTAL) | 47.2 | | µg/L | 0.4 | 20 | 5000 | SMCL | No |
| 90EW0022 | 16-May-00 | 157 | C200.7 | CALCIUM (TOTAL) | 1770 | J | µg/L | 46.6 | 5000 | NA | | |
| 90EW0022 | 16-May-00 | 157 | C200.7 | IRON (TOTAL) | 31.4 | J | µg/L | 28.4 | 100 | 300 | SMCL | No |
| 90EW0022 | 16-May-00 | 157 | C200.7 | MAGNESIUM (TOTAL) | 1170 | J | µg/L | 43.7 | 5000 | NA | | |
| 90EW0022 | 16-May-00 | 157 | C200.7 | SODIUM (TOTAL) | 8110 | | µg/L | 435 | 5000 | 20000 | ORSG | No |
| 90EW0022 | 16-May-00 | 157 | E160.1 | TOTAL DISSOLVED SOLIDS | 44 | | mg/L | 4.9 | 10 | 500000 | SMCL | No |
| 90EW0022 | 16-May-00 | 157 | C200.7 | ZINC (TOTAL) | 39.8 | | µg/L | 0.4 | 20 | 5000 | SMCL | No |
| 90EW0023 | 16-May-00 | 152 | E504 | 1,2-DIBROMOETHANE (EDB) | 0.013 | | µg/L | 0.0051 | 0.01 | 0.02 | MMCL | No |
| 90EW0023 | 16-May-00 | 152 | C200.7 | CALCIUM (TOTAL) | 1790 | J | µg/L | 46.6 | 5000 | NA | | |
| 90EW0023 | 16-May-00 | 152 | C200.7 | MAGNESIUM (TOTAL) | 1250 | J | µg/L | 43.7 | 5000 | NA | | |
| 90EW0023 | 16-May-00 | 152 | C200.7 | SODIUM (TOTAL) | 7340 | | µg/L | 435 | 5000 | 20000 | ORSG | No |

| Location Identification | Date | Depth (feet) | Method | Analyte | Result | Qualifier | Units | DL | RL | Standard (µg/L) | Type | Standard Exceeded ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90EW0023 | 16-May-00 | 152 | E160.1 | TOTAL DISSOLVED SOLIDS | 40 | | mg/L | 4.9 | 10 | 500000 | SMCL | No |
| 90EW0023 | 16-May-00 | 152 | E415.1 | TOTAL ORGANIC CARBON | 0.47 | J | mg/L | 0.43 | 1 | NA | | |
| 90EW0023 | 16-May-00 | 152 | C200.7 | ZINC (TOTAL) | 33.9 | | µg/L | 0.4 | 20 | 5000 | SMCL | No |
| 90EW0023 | 19-Dec-00 | 152 | E504 | 1,2-DIBROMOETHANE (EDB) | 0.0095 | J | µg/L | 0.0048 | 0.01 | 0.02 | MMCL | No |
| 90EW0024 | 16-May-00 | 159.8 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.24** | | µg/L | 0.0051 | 0.01 | 0.02 | MMCL | Yes |
| 90EW0024 | 16-May-00 | 159.8 | C200.7 | CALCIUM (TOTAL) | 1630 | J | µg/L | 46.6 | 5000 | NA | | |
| 90EW0024 | 16-May-00 | 159.8 | C200.7 | IRON (TOTAL) | 34.7 | J | µg/L | 28.4 | 100 | 300 | SMCL | No |
| 90EW0024 | 16-May-00 | 159.8 | C200.7 | MAGNESIUM (TOTAL) | 1090 | J | µg/L | 43.7 | 5000 | NA | | |
| 90EW0024 | 16-May-00 | 159.8 | C200.7 | SELENIUM (TOTAL) | 2.1 | J | µg/L | 2 | 5 | 50 | MCL, MMCL | No |
| 90EW0024 | 16-May-00 | 159.8 | C200.7 | SODIUM (TOTAL) | 8960 | | µg/L | 435 | 5000 | 20000 | ORSG | No |
| 90EW0024 | 16-May-00 | 159.8 | E160.1 | TOTAL DISSOLVED SOLIDS | 52 | | mg/L | 4.9 | 10 | 500000 | SMCL | No |
| 90EW0024 | 16-May-00 | 159.8 | E415.1 | TOTAL ORGANIC CARBON | 0.5 | J | mg/L | 0.43 | 1 | NA | | |
| 90EW0024 | 16-May-00 | 159.8 | C200.7 | ZINC (TOTAL) | 48.6 | | µg/L | 0.4 | 20 | 5000 | SMCL | No |
| 90EW0024 | 19-Dec-00 | 159.8 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.13** | | µg/L | 0.0048 | 0.01 | 0.02 | MMCL | Yes |
| 90EW0025 | 16-May-00 | 173.3 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.76** | | µg/L | 0.01 | 0.02 | 0.02 | MMCL | Yes |
| 90EW0025 | 16-May-00 | 173.3 | CVOL | 1,2-DIBROMOETHANE (EDB) | **0.78** | J | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90EW0025 | 16-May-00 | 173.3 | C200.7 | CALCIUM (TOTAL) | 2100 | J | µg/L | 46.6 | 5000 | NA | | |
| 90EW0025 | 16-May-00 | 173.3 | C200.7 | IRON (TOTAL) | 32.2 | J | µg/L | 28.4 | 100 | 300 | SMCL | No |
| 90EW0025 | 16-May-00 | 173.3 | C200.7 | MAGNESIUM (TOTAL) | 1150 | J | µg/L | 43.7 | 5000 | NA | | |
| 90EW0025 | 16-May-00 | 173.3 | C200.7 | SODIUM (TOTAL) | 8160 | | µg/L | 435 | 5000 | 20000 | ORSG | No |
| 90EW0025 | 16-May-00 | 173.3 | E160.1 | TOTAL DISSOLVED SOLIDS | 48 | | mg/L | 4.9 | 10 | 500000 | SMCL | No |
| 90EW0025 | 16-May-00 | 173.3 | C200.7 | ZINC (TOTAL) | 72.3 | | µg/L | 0.4 | 20 | 5000 | SMCL | No |
| 90EW0025 | 20-Dec-00 | 173.3 | CVOL | 1,2-DIBROMOETHANE (EDB) | **0.61** | J | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90EW0025 | 20-Dec-00 | 173.3 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.69** | | µg/L | 0.0096 | 0.02 | 0.02 | MMCL | Yes |
| 90EW0026 | 17-May-00 | 175.5 | CVOL | 1,2-DIBROMOETHANE (EDB) | **1.4** | | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90EW0026 | 17-May-00 | 175.5 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.5** | | µg/L | 0.02 | 0.04 | 0.02 | MMCL | Yes |
| 90EW0026 | 17-May-00 | 175.5 | C200.7 | CALCIUM (TOTAL) | 2300 | J | µg/L | 30.8 | 5000 | NA | | |
| 90EW0026 | 17-May-00 | 175.5 | C200.7 | MAGNESIUM (TOTAL) | 1340 | J | µg/L | 44.1 | 5000 | NA | | |
| 90EW0026 | 17-May-00 | 175.5 | C200.7 | SODIUM (TOTAL) | 8570 | | µg/L | 597 | 5000 | 20000 | ORSG | No |
| 90EW0026 | 17-May-00 | 175.5 | E160.1 | TOTAL DISSOLVED SOLIDS | 34 | | mg/L | 4.9 | 10 | 500000 | SMCL | No |
| 90EW0026 | 17-May-00 | 175.5 | E415.1 | TOTAL ORGANIC CARBON | 0.48 | J | mg/L | 0.43 | 1 | NA | | |
| 90EW0026 | 17-May-00 | 175.5 | C200.7 | ZINC (TOTAL) | 87.7 | | µg/L | 1.7 | 10 | 5000 | SMCL | No |
| 90EW0026 | 20-Dec-00 | 175.5 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.79** | J | µg/L | 0.019 | 0.04 | 0.02 | MMCL | Yes |
| 90EW0026 | 20-Dec-00 | 175.5 | CVOL | 1,2-DIBROMOETHANE (EDB) | **0.94** | J | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90EW0026 | 20-Dec-00 | 175.5 | CVOL | CHLOROFORM | 0.57 | J | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90EW0027 | 17-May-00 | 175.6 | CVOL | 1,2-DIBROMOETHANE (EDB) | **1.3** | | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90EW0027 | 17-May-00 | 175.6 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.8** | | µg/L | 0.02 | 0.04 | 0.02 | MMCL | Yes |
| 90EW0027 | 17-May-00 | 175.6 | C200.7 | CALCIUM (TOTAL) | 2780 | J | µg/L | 30.8 | 5000 | NA | | |
| 90EW0027 | 17-May-00 | 175.6 | C200.7 | MAGNESIUM (TOTAL) | 1660 | J | µg/L | 44.1 | 5000 | NA | | |
| 90EW0027 | 17-May-00 | 175.6 | C200.7 | SODIUM (TOTAL) | 8810 | | µg/L | 597 | 5000 | 20000 | ORSG | No |
| 90EW0027 | 17-May-00 | 175.6 | E160.1 | TOTAL DISSOLVED SOLIDS | 42 | | mg/L | 4.9 | 10 | 500000 | SMCL | No |
| 90EW0027 | 17-May-00 | 175.6 | E415.1 | TOTAL ORGANIC CARBON | 0.53 | J | mg/L | 0.43 | 1 | NA | | |
| 90EW0027 | 17-May-00 | 175.6 | C200.7 | ZINC (TOTAL) | 110 | | µg/L | 1.7 | 10 | 5000 | SMCL | No |
| 90EW0027 | 20-Dec-00 | 175.6 | E504 | 1,2-DIBROMOETHANE (EDB) | **2.2** | J | µg/L | 0.048 | 0.1 | 0.02 | MMCL | Yes |
| 90EW0027 | 20-Dec-00 | 175.6 | CVOL | 1,2-DIBROMOETHANE (EDB) | **2.5** | | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90EW0027 | 20-Dec-00 | 175.6 | CVOL | CHLOROFORM | 0.58 | J | µg/L | 0.08 | 1 | 5 | ORSG | No |

**Appendix E-1**
**Comparison of Detected Concentrations in Groundwater at FS-12 to Drinking Water Standards**
**January - December 2000**

| Location Identification | Date | Depth (feet) | Method | Analyte | Result | Qualifier | Units | DL | RL | Standard (µg/L) | Type | Standard Exceeded ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90EW0028 | 17-May-00 | 167 | CVOL | 1,2-DIBROMOETHANE (EDB) | **3.4** | J | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90EW0028 | 17-May-00 | 167 | E504 | 1,2-DIBROMOETHANE (EDB) | **4.3** | | µg/L | 0.051 | 0.1 | 0.02 | MMCL | Yes |
| 90EW0028 | 17-May-00 | 167 | C200.7 | BARIUM (TOTAL) | 5.9 | J | µg/L | 0.3 | 200 | 2000 | MCL, MMCL | No |
| 90EW0028 | 17-May-00 | 167 | C200.7 | CALCIUM (TOTAL) | 2240 | J | µg/L | 30.8 | 5000 | NA | | |
| 90EW0028 | 17-May-00 | 167 | C200.7 | MAGNESIUM (TOTAL) | 1510 | J | µg/L | 44.1 | 5000 | NA | | |
| 90EW0028 | 17-May-00 | 167 | C200.7 | SODIUM (TOTAL) | 8420 | | µg/L | 597 | 5000 | 20000 | ORSG | No |
| 90EW0028 | 17-May-00 | 167 | E160.1 | TOTAL DISSOLVED SOLIDS | 38 | | mg/L | 4.9 | 10 | 500000 | SMCL | No |
| 90EW0028 | 17-May-00 | 167 | E415.1 | TOTAL ORGANIC CARBON | 0.45 | J | mg/L | 0.43 | 1 | NA | | |
| 90EW0028 | 17-May-00 | 167 | C200.7 | ZINC (TOTAL) | 145 | | µg/L | 1.7 | 10 | 5000 | SMCL | No |
| 90EW0028 | 20-Dec-00 | 167 | CVOL | 1,2-DIBROMOETHANE (EDB) | **3** | | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90EW0028 | 20-Dec-00 | 167 | E504 | 1,2-DIBROMOETHANE (EDB) | **3.3** | | µg/L | 0.048 | 0.1 | 0.02 | MMCL | Yes |
| 90EW0028 | 20-Dec-00 | 167 | CVOL | CHLOROFORM | 0.53 | J | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90EW0029 | 17-May-00 | 165 | CVOL | 1,2-DIBROMOETHANE (EDB) | **1.2** | | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90EW0029 | 17-May-00 | 165 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.4** | | µg/L | 0.02 | 0.04 | 0.02 | MMCL | Yes |
| 90EW0029 | 17-May-00 | 165 | C200.7 | CALCIUM (TOTAL) | 1980 | J | µg/L | 30.8 | 5000 | NA | | |
| 90EW0029 | 17-May-00 | 165 | C200.7 | MAGNESIUM (TOTAL) | 1230 | J | µg/L | 44.1 | 5000 | NA | | |
| 90EW0029 | 17-May-00 | 165 | C200.7 | SELENIUM (TOTAL) | 3.4 | J | µg/L | 2.6 | 5 | 50 | MCL, MMCL | No |
| 90EW0029 | 17-May-00 | 165 | C200.7 | SODIUM (TOTAL) | 6850 | | µg/L | 597 | 5000 | 20000 | ORSG | No |
| 90EW0029 | 17-May-00 | 165 | E160.1 | TOTAL DISSOLVED SOLIDS | 38 | | mg/L | 4.9 | 10 | 500000 | SMCL | No |
| 90EW0029 | 17-May-00 | 165 | E415.1 | TOTAL ORGANIC CARBON | 0.5 | J | mg/L | 0.43 | 1 | NA | | |
| 90EW0029 | 17-May-00 | 165 | C200.7 | ZINC (TOTAL) | 193 | | µg/L | 1.7 | 10 | 5000 | SMCL | No |
| 90EW0029 | 20-Dec-00 | 165 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.9** | | µg/L | 0.019 | 0.04 | 0.02 | MMCL | Yes |
| 90EW0029 | 20-Dec-00 | 165 | CVOL | 1,2-DIBROMOETHANE (EDB) | **0.92** | J | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90EW0029 | 20-Dec-00 | 165 | CVOL | CHLOROFORM | 1.1 | | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90EW0030 | 17-May-00 | 168 | C200.7 | CALCIUM (TOTAL) | 1840 | J | µg/L | 30.8 | 5000 | NA | | |
| 90EW0030 | 17-May-00 | 168 | C200.7 | CHROMIUM (TOTAL) | 2.3 | J | µg/L | 1.8 | 10 | 100 | MCL, MMCL | No |
| 90EW0030 | 17-May-00 | 168 | C200.7 | MAGNESIUM (TOTAL) | 1080 | J | µg/L | 44.1 | 5000 | NA | | |
| 90EW0030 | 17-May-00 | 168 | C200.7 | SODIUM (TOTAL) | 7080 | | µg/L | 597 | 5000 | 20000 | ORSG | No |
| 90EW0030 | 17-May-00 | 168 | E160.1 | TOTAL DISSOLVED SOLIDS | 28 | | mg/L | 4.9 | 10 | 500000 | SMCL | No |
| 90EW0030 | 17-May-00 | 168 | E415.1 | TOTAL ORGANIC CARBON | 0.56 | J | mg/L | 0.43 | 1 | NA | | |
| 90EW0030 | 17-May-00 | 168 | C200.7 | ZINC (TOTAL) | 188 | | µg/L | 1.7 | 10 | 5000 | SMCL | No |
| 90EW0030 | 20-Dec-00 | 168 | CVOL | CHLOROFORM | 1.2 | | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90JB0001B | 8-Dec-00 | 91.5 | C200.7 | BARIUM (TOTAL) | 5.1 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90JB0001B | 8-Dec-00 | 91.5 | C200.7 | CALCIUM (TOTAL) | 3390 | J | µg/L | 47.4 | 5000 | NA | | |
| 90JB0001B | 8-Dec-00 | 91.5 | C200.7 | MAGNESIUM (TOTAL) | 851 | J | µg/L | 41.6 | 5000 | NA | | |
| 90JB0001B | 8-Dec-00 | 91.5 | CVOL | METHYLENE CHLORIDE | 0.7 | J | µg/L | 0.08 | 2 | NA | | |
| 90JB0001B | 8-Dec-00 | 91.5 | C200.7 | POTASSIUM (TOTAL) | 1360 | J | µg/L | 1180 | 5000 | NA | | |
| 90JB0001B | 8-Dec-00 | 91.5 | C200.7 | SODIUM (TOTAL) | 7190 | | µg/L | 82.8 | 5000 | 20000 | ORSG | No |
| 90JB0001C | 8-Dec-00 | 136.5 | C200.7 | CALCIUM (TOTAL) | 1580 | J | µg/L | 47.4 | 5000 | NA | | |
| 90JB0001C | 8-Dec-00 | 136.5 | C200.7 | MAGNESIUM (TOTAL) | 1130 | J | µg/L | 41.6 | 5000 | NA | | |
| 90JB0001C | 8-Dec-00 | 136.5 | C200.7 | SODIUM (TOTAL) | 8790 | | µg/L | 82.8 | 5000 | 20000 | ORSG | No |
| 90JB0001D | 12-Dec-00 | 161.5 | C200.7 | BARIUM (TOTAL) | 2.5 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90JB0001D | 12-Dec-00 | 161.5 | C200.7 | CALCIUM (TOTAL) | 2140 | J | µg/L | 47.4 | 5000 | NA | | |
| 90JB0001D | 12-Dec-00 | 161.5 | C200.7 | IRON (TOTAL) | 272 | | µg/L | 35.1 | 100 | 300 | SMCL | No |
| 90JB0001D | 12-Dec-00 | 161.5 | C200.7 | MAGNESIUM (TOTAL) | 1080 | J | µg/L | 59.4 | 5000 | NA | | |
| 90JB0001D | 12-Dec-00 | 161.5 | C200.7 | NICKEL (TOTAL) | 4.3 | J | µg/L | 1.1 | 40 | 100 | ORSG | No |

## Appendix E-1
## Comparison of Detected Concentrations in Groundwater at FS-12 to Drinking Water Standards
## January - December 2000

| Location Identification | Date | Depth (feet) | Method | Analyte | Result | Qualifier | Units | DL | RL | Standard (µg/L) | Type | Standard Exceeded ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90JB0001D | 12-Dec-00 | 161.5 | C200.7 | SODIUM (TOTAL) | 7840 | | µg/L | 385 | 5000 | 20000 | ORSG | No |
| 90JB0001D | 12-Dec-00 | 161.5 | CVOL | TOLUENE | 1 | | µg/L | 0.09 | 1 | 1000 | MMCL | No |
| 90JB0004A | 8-Dec-00 | 131.5 | C200.7 | CALCIUM (TOTAL) | 1940 | J | µg/L | 47.4 | 5000 | NA | | |
| 90JB0004A | 8-Dec-00 | 131.5 | C200.7 | MAGNESIUM (TOTAL) | 1250 | J | µg/L | 41.6 | 5000 | NA | | |
| 90JB0004A | 8-Dec-00 | 131.5 | C200.7 | MANGANESE (TOTAL) | 3.6 | J | µg/L | 1 | 15 | 50 | SMCL | No |
| 90JB0004A | 8-Dec-00 | 131.5 | C200.7 | SODIUM (TOTAL) | 7720 | | µg/L | 82.8 | 5000 | 20000 | ORSG | No |
| 90JB0004A | 8-Dec-00 | 131.5 | CVOL | TOLUENE | 4.1 | | µg/L | 0.09 | 1 | 1000 | MMCL | No |
| 90JB0004C | 8-Dec-00 | 99.5 | C200.7 | BARIUM (TOTAL) | 6.3 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90JB0004C | 8-Dec-00 | 99.5 | C200.7 | CALCIUM (TOTAL) | 2350 | J | µg/L | 47.4 | 5000 | NA | | |
| 90JB0004C | 8-Dec-00 | 99.5 | CVOL | CHLOROFORM | 0.73 | J | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90JB0004C | 8-Dec-00 | 99.5 | C200.7 | COBALT (TOTAL) | 2.6 | J | µg/L | 1.1 | 50 | NA | | No |
| 90JB0004C | 8-Dec-00 | 99.5 | C200.7 | MAGNESIUM (TOTAL) | 1940 | J | µg/L | 41.6 | 5000 | NA | | |
| 90JB0004C | 8-Dec-00 | 99.5 | C200.7 | SODIUM (TOTAL) | 7650 | | µg/L | 82.8 | 5000 | 20000 | ORSG | No |
| 90JB0006B | 16-Mar-00 | 153.5 | SW6010 | CALCIUM (TOTAL) | 2490 | J | µg/L | 38.5 | 5000 | NA | | |
| 90JB0006B | 16-Mar-00 | 153.5 | SW6010 | IRON (TOTAL) | 42.7 | J | µg/L | 39.4 | 100 | 300 | SMCL | No |
| 90JB0006B | 16-Mar-00 | 153.5 | SW6010 | MAGNESIUM (TOTAL) | 1110 | J | µg/L | 42.5 | 5000 | NA | | |
| 90JB0006B | 16-Mar-00 | 153.5 | SW6010 | SODIUM (TOTAL) | 11300 | | µg/L | 355 | 5000 | 20000 | ORSG | No |
| 90JB0006B | 16-Mar-00 | 153.5 | E160.2 | SUSPENDED SOLIDS (RESIDUE, NON-FILTERED) | 4 | | mg/L | 3.6 | 4 | NA | | |
| 90JB0006B | 3-May-00 | 153.5 | C200.7 | BARIUM (TOTAL) | 2.6 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90JB0006B | 3-May-00 | 153.5 | C200.7 | CALCIUM (TOTAL) | 2530 | J | µg/L | 46.6 | 5000 | NA | | |
| 90JB0006B | 3-May-00 | 153.5 | C200.7 | IRON (TOTAL) | 149 | | µg/L | 28.4 | 100 | 300 | SMCL | No |
| 90JB0006B | 3-May-00 | 153.5 | C200.7 | LEAD (TOTAL) | 1.7 | J | µg/L | 1.7 | 3 | 15 | MCL, MMCL | No |
| 90JB0006B | 3-May-00 | 153.5 | C200.7 | MAGNESIUM (TOTAL) | 1130 | J | µg/L | 43.7 | 5000 | NA | | |
| 90JB0006B | 3-May-00 | 153.5 | C200.7 | MANGANESE (TOTAL) | 1.2 | J | µg/L | 1 | 15 | 50 | SMCL | No |
| 90JB0006B | 3-May-00 | 153.5 | C200.7 | NICKEL (TOTAL) | 1.9 | J | µg/L | 1.7 | 40 | 100 | ORSG | No |
| 90JB0006B | 3-May-00 | 153.5 | C200.7 | POTASSIUM (TOTAL) | 612 | J | µg/L | 24.1 | 5000 | NA | | |
| 90JB0006B | 3-May-00 | 153.5 | C200.7 | SODIUM (TOTAL) | 10900 | | µg/L | 435 | 5000 | 20000 | ORSG | No |
| 90JB0006B | 3-May-00 | 153.5 | E160.2 | SUSPENDED SOLIDS (RESIDUE, NON-FILTERED) | 5 | | mg/L | 4.8 | 5 | NA | | |
| 90JB0006B | 3-May-00 | 153.5 | C200.7 | ZINC (TOTAL) | 3.6 | J | µg/L | 2.6 | 20 | 5000 | SMCL | No |
| 90JB0006B | 8-Sep-00 | 153.5 | C200.7 | BARIUM (TOTAL) | 2.6 | J | µg/L | 0.3 | 200 | 2000 | MCL, MMCL | No |
| 90JB0006B | 8-Sep-00 | 153.5 | C200.7 | CALCIUM (TOTAL) | 2600 | J | µg/L | 71.9 | 5000 | NA | | |
| 90JB0006B | 8-Sep-00 | 153.5 | C200.7 | CHROMIUM (TOTAL) | 6.5 | J | µg/L | 0.7 | 10 | 100 | MCL, MMCL | No |
| 90JB0006B | 8-Sep-00 | 153.5 | C200.7 | MAGNESIUM (TOTAL) | 1150 | J | µg/L | 72.8 | 5000 | NA | | |
| 90JB0006B | 8-Sep-00 | 153.5 | C200.7 | SILVER (TOTAL) | 0.7 | J | µg/L | 0.6 | 10 | 100 | SMCL | No |
| 90JB0006B | 8-Sep-00 | 153.5 | C200.7 | SODIUM (TOTAL) | 10400 | | µg/L | 158 | 5000 | 20000 | ORSG | No |
| 90JB0006B | 8-Dec-00 | 153.5 | C200.7 | CALCIUM (TOTAL) | 2560 | J | µg/L | 47.4 | 5000 | NA | | |
| 90JB0006B | 8-Dec-00 | 153.5 | C200.7 | MAGNESIUM (TOTAL) | 1320 | J | µg/L | 41.6 | 5000 | NA | | |
| 90JB0006B | 8-Dec-00 | 153.5 | C200.7 | SODIUM (TOTAL) | 11900 | | µg/L | 82.8 | 5000 | 20000 | ORSG | No |
| 90MP0059B | 2-May-00 | 114.5 | E504 | 1,2-DIBROMOETHANE (EDB) | 0.016 | | µg/L | 0.005 | 0.01 | 0.02 | MMCL | No |
| 90MP0059B | 6-Sep-00 | 117.64 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.028** | | µg/L | 0.005 | 0.01 | 0.02 | MMCL | Yes |
| 90MP0059B | 25-Oct-00 | 117.64 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.031** | | µg/L | 0.005 | 0.01 | 0.02 | MMCL | Yes |
| 90MP0059D | 26-Apr-00 | 70 | E415.1 | DISSOLVED ORGANIC CARBON | 0.48 | J | mg/L | 0.43 | 1 | NA | | |
| 90MP0059D | 26-Apr-00 | 70 | MCTNP | NITROGEN | 53.5 | | µg/L | 8.7 | 30 | NA | | |
| 90MP0059D | 26-Apr-00 | 70 | A4500H | NITROGEN, AMMONIA (AS N) | 7.8 | J | µg/L | 5 | 10 | NA | | |
| 90MP0059D | 26-Apr-00 | 70 | A4500F | NITROGEN, NITRATE (AS N) | 43.4 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| 90MP0059D | 26-Apr-00 | 70 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 11.6 | | µg/L | 1.5 | 3 | NA | | |

**Appendix E-1**
**Comparison of Detected Concentrations in Groundwater at FS-12 to Drinking Water Standards**
**January - December 2000**

| Location Identification | Date | Depth (feet) | Method | Analyte | Result | Qualifier | Units | DL | RL | Standard (µg/L) | Type | Standard Exceeded ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MP0059D | 26-Apr-00 | 70 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 10.3 | | µg/L | 0.6 | 2 | NA | | |
| 90MP0059D | 26-Apr-00 | 70 | E415.1 | TOTAL ORGANIC CARBON | 0.44 | J | mg/L | 0.43 | 1 | NA | | |
| 90MP0059D | 31-May-00 | 68.8 | MCTNP | NITROGEN | 159 | | µg/L | 8.7 | 30 | NA | | |
| 90MP0059D | 31-May-00 | 68.8 | A4500H | NITROGEN, AMMONIA (AS N) | 7.6 | J | µg/L | 5 | 10 | NA | | |
| 90MP0059D | 31-May-00 | 68.8 | A4500F | NITROGEN, NITRATE (AS N) | 109 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| 90MP0059D | 31-May-00 | 68.8 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 30.7 | | µg/L | 1.5 | 3 | NA | | |
| 90MP0059D | 31-May-00 | 68.8 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 28.1 | | µg/L | 0.6 | 2 | NA | | |
| 90MP0060A | 6-Sep-00 | 171.77 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.349** | | µg/L | 0.01 | 0.02 | 0.02 | MMCL | Yes |
| 90MP0060A | 25-Oct-00 | 171.77 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.189** | | µg/L | 0.005 | 0.01 | 0.02 | MMCL | Yes |
| 90MP0060C | 3-May-00 | 125.5 | CVOL | ACETONE | 34 | J | µg/L | 0.71 | 5 | 3000 | ORSG | No |
| 90MP0060C | 3-May-00 | 125.5 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 18.3 | | mg/L | 2.2 | 5 | NA | | |
| 90MP0060C | 3-May-00 | 125.5 | E415.1 | DISSOLVED ORGANIC CARBON | 0.54 | J | mg/L | 0.43 | 1 | NA | | |
| 90MP0060C | 3-May-00 | 125.5 | MCTNP | NITROGEN | 44 | | µg/L | 8.7 | 30 | NA | | |
| 90MP0060C | 3-May-00 | 125.5 | A4500H | NITROGEN, AMMONIA (AS N) | 5.2 | J | µg/L | 5 | 10 | NA | | |
| 90MP0060C | 3-May-00 | 125.5 | A4500F | NITROGEN, NITRATE (AS N) | 43.5 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| 90MP0060C | 3-May-00 | 125.5 | A4500B | NITROGEN, NITRITE | 0.5 | J | µg/L | 0.2 | 3 | 1000 | MCL, MMCL | No |
| 90MP0060C | 3-May-00 | 125.5 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 49.1 | | µg/L | 1.5 | 3 | NA | | |
| 90MP0060C | 3-May-00 | 125.5 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 43.9 | | µg/L | 0.6 | 2 | NA | | |
| 90MP0060D | 3-Jan-00 | 100.5 | C200.7 | CALCIUM (TOTAL) | 1990 | | µg/L | 9.5 | 500 | NA | | |
| 90MP0060D | 3-Jan-00 | 100.5 | C200.7 | CHROMIUM (TOTAL) | 10 | | µg/L | 0.29 | 5 | 100 | MCL, MMCL | No |
| 90MP0060D | 3-Jan-00 | 100.5 | C200.7 | MAGNESIUM (TOTAL) | 1040 | | µg/L | 5.2 | 500 | NA | | |
| 90MP0060D | 3-Jan-00 | 100.5 | C200.7 | NICKEL (TOTAL) | **328** | | µg/L | 1 | 20 | 100 | ORSG | Yes |
| 90MP0060D | 3-Jan-00 | 100.5 | C200.7 | SODIUM (TOTAL) | 12600 | | µg/L | 99.5 | 1500 | 20000 | ORSG | No |
| 90MP0060D | 3-Jan-00 | 100.5 | E160.2 | SUSPENDED SOLIDS (RESIDUE, NON-FILTERED) | 16 | | mg/L | 3.6 | 4 | NA | | |
| 90MP0060D | 16-Mar-00 | 100.5 | SW6010 | CALCIUM (TOTAL) | 2440 | J | µg/L | 38.5 | 5000 | NA | | |
| 90MP0060D | 16-Mar-00 | 100.5 | SW6010 | IRON (TOTAL) | 51.2 | J | µg/L | 39.4 | 100 | 300 | SMCL | No |
| 90MP0060D | 16-Mar-00 | 100.5 | SW6010 | MAGNESIUM (TOTAL) | 1420 | J | µg/L | 42.5 | 5000 | NA | | |
| 90MP0060D | 16-Mar-00 | 100.5 | SW6010 | POTASSIUM (TOTAL) | 763 | J | µg/L | 25.7 | 5000 | NA | | |
| 90MP0060D | 16-Mar-00 | 100.5 | SW6010 | SODIUM (TOTAL) | 10100 | | µg/L | 355 | 5000 | 20000 | ORSG | No |
| 90MP0060D | 3-May-00 | 100.5 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 18 | | mg/L | 2.2 | 5 | NA | | |
| 90MP0060D | 3-May-00 | 100.5 | C200.7 | BARIUM (TOTAL) | 3.5 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90MP0060D | 3-May-00 | 100.5 | C200.7 | CALCIUM (TOTAL) | 2050 | J | µg/L | 46.6 | 5000 | NA | | |
| 90MP0060D | 3-May-00 | 100.5 | E415.1 | DISSOLVED ORGANIC CARBON | 0.75 | J | mg/L | 0.43 | 1 | NA | | |
| 90MP0060D | 3-May-00 | 100.5 | C200.7 | MAGNESIUM (TOTAL) | 1170 | J | µg/L | 43.7 | 5000 | NA | | |
| 90MP0060D | 3-May-00 | 100.5 | MCTNP | NITROGEN | 29.3 | J | µg/L | 8.7 | 30 | NA | | |
| 90MP0060D | 3-May-00 | 100.5 | A4500F | NITROGEN, NITRATE (AS N) | 34.8 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| 90MP0060D | 3-May-00 | 100.5 | A4500B | NITROGEN, NITRITE | 0.6 | J | µg/L | 0.2 | 3 | 1000 | MCL, MMCL | No |
| 90MP0060D | 3-May-00 | 100.5 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 38.1 | | µg/L | 1.5 | 3 | NA | | |
| 90MP0060D | 3-May-00 | 100.5 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 33.4 | | µg/L | 0.6 | 2 | NA | | |
| 90MP0060D | 3-May-00 | 100.5 | C200.7 | POTASSIUM (TOTAL) | 671 | J | µg/L | 24.1 | 5000 | NA | | |
| 90MP0060D | 3-May-00 | 100.5 | C200.7 | SODIUM (TOTAL) | 10900 | | µg/L | 435 | 5000 | 20000 | ORSG | No |
| 90MP0060D | 12-Sep-00 | 103.27 | C200.7 | CALCIUM (TOTAL) | 2320 | J | µg/L | 71.9 | 5000 | NA | | |
| 90MP0060D | 12-Sep-00 | 103.27 | C200.7 | MAGNESIUM (TOTAL) | 1200 | J | µg/L | 72.8 | 5000 | NA | | |
| 90MP0060D | 12-Sep-00 | 103.27 | C200.7 | SODIUM (TOTAL) | 9710 | | µg/L | 158 | 5000 | 20000 | ORSG | No |
| 90MP0060D | 13-Dec-00 | 103.27 | C200.7 | BARIUM (TOTAL) | 4.1 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90MP0060D | 13-Dec-00 | 103.27 | C200.7 | CALCIUM (TOTAL) | 2300 | J | µg/L | 47.4 | 5000 | NA | | |

**Appendix E-1**
**Comparison of Detected Concentrations in Groundwater at FS-12 to Drinking Water Standards**
**January - December 2000**

| Location Identification | Date | Depth (feet) | Method | Analyte | Result | Qualifier | Units | DL | RL | Standard (µg/L) | Type | Standard Exceeded ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MP0060D | 13-Dec-00 | 103.27 | C200.7 | MAGNESIUM (TOTAL) | 1340 | J | µg/L | 59.4 | 5000 | NA | | |
| 90MP0060D | 13-Dec-00 | 103.27 | C200.7 | POTASSIUM (TOTAL) | 784 | J | µg/L | 21 | 5000 | NA | | |
| 90MP0060D | 13-Dec-00 | 103.27 | C200.7 | SODIUM (TOTAL) | 10900 | | µg/L | 385 | 5000 | 20000 | ORSG | No |
| 90MP0060D | 13-Dec-00 | 103.27 | CVOL | TOLUENE | 0.66 | J | µg/L | 0.09 | 1 | 1000 | MMCL | No |
| 90MP0060F | 3-May-00 | 42.5 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 18.3 | | mg/L | 2.2 | 5 | NA | | |
| 90MP0060F | 3-May-00 | 42.5 | E415.1 | DISSOLVED ORGANIC CARBON | 0.69 | J | mg/L | 0.43 | 1 | NA | | |
| 90MP0060F | 3-May-00 | 42.5 | MCTNP | NITROGEN | 29.5 | J | µg/L | 8.7 | 30 | NA | | |
| 90MP0060F | 3-May-00 | 42.5 | A4500H | NITROGEN, AMMONIA (AS N) | 8.7 | J | µg/L | 5 | 10 | NA | | |
| 90MP0060F | 3-May-00 | 42.5 | A4500F | NITROGEN, NITRATE (AS N) | 36.8 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| 90MP0060F | 3-May-00 | 42.5 | A4500B | NITROGEN, NITRITE | 0.6 | J | µg/L | 0.2 | 3 | 1000 | MCL, MMCL | No |
| 90MP0060F | 3-May-00 | 42.5 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 40.9 | | µg/L | 1.5 | 3 | NA | | |
| 90MP0060F | 3-May-00 | 42.5 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 35.1 | | µg/L | 0.6 | 2 | NA | | |
| 90MW0001 | 14-Mar-00 | 134.5 | CVOL | BENZENE | **27** | | µg/L | 0.22 | 2 | 5 | MCL, MMCL | Yes |
| 90MW0001 | 14-Mar-00 | 134.5 | CVOL | ETHYLBENZENE | 4 | | µg/L | 0.2 | 2 | 700 | MCL, MMCL | No |
| 90MW0001 | 14-Mar-00 | 134.5 | CVOL | TOLUENE | 1.1 | J | µg/L | 0.18 | 2 | 1000 | MMCL | No |
| 90MW0001 | 12-Sep-00 | 134.5 | CVOL | BENZENE | **34** | | µg/L | 0.22 | 2 | 5 | MCL, MMCL | Yes |
| 90MW0001 | 12-Sep-00 | 134.5 | CVOL | ETHYLBENZENE | 7.6 | | µg/L | 0.2 | 2 | 700 | MCL, MMCL | No |
| 90MW0001 | 12-Sep-00 | 134.5 | CVOL | TOLUENE | 1.1 | J | mg/L | 0.18 | 2 | 1000 | MMCL | No |
| 90MW0002 | 20-Mar-00 | 93.5 | CVOL | CHLOROFORM | 0.83 | J | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90MW0003 | 14-Mar-00 | 146.5 | E504 | 1,2-DIBROMOETHANE (EDB) | 0.0081 | J | µg/L | 0.0051 | 0.01 | 0.02 | MMCL | No |
| 90MW0003 | 14-Mar-00 | 146.5 | SW6010 | ALUMINUM (TOTAL) | **241** | | µg/L | 46.4 | 200 | 200 | SMCL | Yes |
| 90MW0003 | 14-Mar-00 | 146.5 | SW6010 | ARSENIC (TOTAL) | 4.2 | J | µg/L | 3.4 | 10 | 50 | MCL, MMCL | No |
| 90MW0003 | 14-Mar-00 | 146.5 | CVOL | BENZENE | **64** | | µg/L | 0.55 | 5 | 5 | MCL, MMCL | Yes |
| 90MW0003 | 14-Mar-00 | 146.5 | SW6010 | CALCIUM (TOTAL) | 4030 | J | µg/L | 38.5 | 5000 | NA | | |
| 90MW0003 | 14-Mar-00 | 146.5 | SW6010 | CHROMIUM (TOTAL) | 4.3 | J | µg/L | 1.2 | 10 | 100 | MCL, MMCL | No |
| 90MW0003 | 14-Mar-00 | 146.5 | SW6010 | COBALT (TOTAL) | 4.1 | J | µg/L | 1 | 50 | NA | | No |
| 90MW0003 | 14-Mar-00 | 146.5 | SW6010 | IRON (TOTAL) | **1390** | | µg/L | 39.4 | 100 | 300 | SMCL | Yes |
| 90MW0003 | 14-Mar-00 | 146.5 | SW6010 | MAGNESIUM (TOTAL) | 2580 | J | µg/L | 42.5 | 5000 | NA | | |
| 90MW0003 | 14-Mar-00 | 146.5 | SW6010 | MANGANESE (TOTAL) | **227** | | µg/L | 0.8 | 15 | 50 | SMCL | Yes |
| 90MW0003 | 14-Mar-00 | 146.5 | SW6010 | NICKEL (TOTAL) | 3.9 | J | µg/L | 1.5 | 40 | 100 | ORSG | No |
| 90MW0003 | 14-Mar-00 | 146.5 | SW6010 | POTASSIUM (TOTAL) | 781 | J | µg/L | 25.7 | 5000 | NA | | |
| 90MW0003 | 14-Mar-00 | 146.5 | SW6010 | SODIUM (TOTAL) | 9090 | | µg/L | 355 | 5000 | 20000 | ORSG | No |
| 90MW0003 | 14-Mar-00 | 146.5 | SW6010 | ZINC (TOTAL) | 14.6 | J | µg/L | 0.7 | 20 | 5000 | SMCL | No |
| 90MW0003 | 4-May-00 | 146.5 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.031** | | µg/L | 0.0051 | 0.01 | 0.02 | MMCL | Yes |
| 90MW0003 | 4-May-00 | 146.5 | CVOL | BENZENE | **45** | | µg/L | 0.22 | 2 | 5 | MCL, MMCL | Yes |
| 90MW0003 | 4-May-00 | 146.5 | CVOL | ETHYLBENZENE | 1.1 | J | µg/L | 0.2 | 2 | 700 | MCL, MMCL | No |
| 90MW0003 | 8-Sep-00 | 146.5 | CVOL | BENZENE | 3.9 | | µg/L | 0.11 | 1 | 5 | MCL, MMCL | No |
| 90MW0003 | 8-Sep-00 | 146.5 | CVOL | ETHYLBENZENE | 0.56 | J | µg/L | 0.1 | 1 | 700 | MCL, MMCL | No |
| 90MW0003 | 11-Dec-00 | 146.5 | C200.7 | BARIUM (TOTAL) | 5.3 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90MW0003 | 11-Dec-00 | 146.5 | CVOL | BENZENE | 1.1 | | µg/L | 0.11 | 1 | 5 | MCL, MMCL | No |
| 90MW0003 | 11-Dec-00 | 146.5 | C200.7 | CALCIUM (TOTAL) | 4110 | J | µg/L | 47.4 | 5000 | NA | | |
| 90MW0003 | 11-Dec-00 | 146.5 | C200.7 | COBALT (TOTAL) | 4.5 | J | µg/L | 1.1 | 50 | NA | | No |
| 90MW0003 | 11-Dec-00 | 146.5 | C200.7 | IRON (TOTAL) | **718** | | µg/L | 35.1 | 100 | 300 | SMCL | Yes |
| 90MW0003 | 11-Dec-00 | 146.5 | C200.7 | MAGNESIUM (TOTAL) | 2460 | J | µg/L | 59.4 | 5000 | NA | | |
| 90MW0003 | 11-Dec-00 | 146.5 | C200.7 | MANGANESE (TOTAL) | **255** | | µg/L | 1 | 15 | 50 | SMCL | Yes |
| 90MW0003 | 11-Dec-00 | 146.5 | C200.7 | NICKEL (TOTAL) | 3 | J | µg/L | 1.1 | 40 | 100 | ORSG | No |

**Appendix E-1**
**Comparison of Detected Concentrations in Groundwater at FS-12 to Drinking Water Standards**
**January - December 2000**

| Location Identification | Date | Depth (feet) | Method | Analyte | Result | Qualifier | Units | DL | RL | Standard (µg/L) | Type | Standard Exceeded ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0003 | 11-Dec-00 | 146.5 | C200.7 | POTASSIUM (TOTAL) | 792 | J | µg/L | 21 | 5000 | NA | | |
| 90MW0003 | 11-Dec-00 | 146.5 | C200.7 | SODIUM (TOTAL) | 8290 | | µg/L | 385 | 5000 | 20000 | ORSG | No |
| 90MW0005 | 14-Mar-00 | 186.5 | E504 | 1,2-DIBROMOETHANE (EDB) | **2.4** | | µg/L | 0.051 | 0.1 | 0.02 | MMCL | Yes |
| 90MW0005 | 14-Mar-00 | 186.5 | CVOL | 1,2-DIBROMOETHANE (EDB) | **2.9** | | µg/L | 0.2 | 2 | 0.02 | MMCL | Yes |
| 90MW0005 | 14-Mar-00 | 186.5 | CVOL | BENZENE | **28** | | µg/L | 0.22 | 2 | 5 | MCL, MMCL | Yes |
| 90MW0005 | 4-May-00 | 186.5 | CVOL | 1,2-DIBROMOETHANE (EDB) | **2.9** | | µg/L | 0.2 | 2 | 0.02 | MMCL | Yes |
| 90MW0005 | 4-May-00 | 186.5 | E504 | 1,2-DIBROMOETHANE (EDB) | **3.5** | | µg/L | 0.1 | 0.2 | 0.02 | MMCL | Yes |
| 90MW0005 | 4-May-00 | 186.5 | CVOL | BENZENE | **29** | | µg/L | 0.22 | 2 | 5 | MCL, MMCL | Yes |
| 90MW0005 | 11-Sep-00 | 186.5 | CVOL | 1,2-DIBROMOETHANE (EDB) | **2.4** | | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90MW0005 | 11-Sep-00 | 186.5 | E504 | 1,2-DIBROMOETHANE (EDB) | **3** | | µg/L | 0.051 | 0.1 | 0.02 | MMCL | Yes |
| 90MW0005 | 11-Sep-00 | 186.5 | CVOL | BENZENE | 3.1 | | µg/L | 0.11 | 1 | 5 | MCL, MMCL | No |
| 90MW0005 | 11-Dec-00 | 186.5 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.9** | | µg/L | 0.048 | 0.1 | 0.02 | MMCL | Yes |
| 90MW0005 | 11-Dec-00 | 186.5 | CVOL | 1,2-DIBROMOETHANE (EDB) | **1.9** | | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90MW0005 | 11-Dec-00 | 186.5 | C200.7 | BARIUM (TOTAL) | 4.1 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90MW0005 | 11-Dec-00 | 186.5 | CVOL | BENZENE | 1.7 | | µg/L | 0.11 | 1 | 5 | MCL, MMCL | No |
| 90MW0005 | 11-Dec-00 | 186.5 | C200.7 | CALCIUM (TOTAL) | 3880 | J | µg/L | 47.4 | 5000 | NA | | |
| 90MW0005 | 11-Dec-00 | 186.5 | C200.7 | IRON (TOTAL) | 77.5 | J | µg/L | 35.1 | 100 | 300 | SMCL | No |
| 90MW0005 | 11-Dec-00 | 186.5 | C200.7 | MAGNESIUM (TOTAL) | 1800 | J | µg/L | 59.4 | 5000 | NA | | |
| 90MW0005 | 11-Dec-00 | 186.5 | C200.7 | MANGANESE (TOTAL) | **336** | | µg/L | 1 | 15 | 50 | SMCL | Yes |
| 90MW0005 | 11-Dec-00 | 186.5 | C200.7 | NICKEL (TOTAL) | 5.1 | J | µg/L | 1.1 | 40 | 100 | ORSG | No |
| 90MW0005 | 11-Dec-00 | 186.5 | C200.7 | POTASSIUM (TOTAL) | 790 | J | µg/L | 21 | 5000 | NA | | |
| 90MW0005 | 11-Dec-00 | 186.5 | C200.7 | SODIUM (TOTAL) | 8020 | | µg/L | 385 | 5000 | 20000 | ORSG | No |
| 90MW0015 | 20-Mar-00 | 99 | SW6010 | CALCIUM (TOTAL) | 1450 | J | µg/L | 38.5 | 5000 | NA | | |
| 90MW0015 | 20-Mar-00 | 99 | SW6010 | IRON (TOTAL) | 79.4 | J | µg/L | 39.4 | 100 | 300 | SMCL | No |
| 90MW0015 | 20-Mar-00 | 99 | SW6010 | MAGNESIUM (TOTAL) | 762 | J | µg/L | 42.5 | 5000 | NA | | |
| 90MW0015 | 20-Mar-00 | 99 | SW6010 | SODIUM (TOTAL) | 9200 | | µg/L | 355 | 5000 | 20000 | ORSG | No |
| 90MW0015 | 5-May-00 | 99 | C200.7 | BARIUM (TOTAL) | 2.9 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90MW0015 | 5-May-00 | 99 | C200.7 | CADMIUM (TOTAL) | 1.1 | J | µg/L | 0.3 | 5 | 5 | MCL, MMCL | No |
| 90MW0015 | 5-May-00 | 99 | C200.7 | CALCIUM (TOTAL) | 1340 | J | µg/L | 46.6 | 5000 | NA | | |
| 90MW0015 | 5-May-00 | 99 | C200.7 | MAGNESIUM (TOTAL) | 729 | J | µg/L | 43.7 | 5000 | NA | | |
| 90MW0015 | 5-May-00 | 99 | C200.7 | NICKEL (TOTAL) | 2.1 | J | µg/L | 1.7 | 40 | 100 | ORSG | No |
| 90MW0015 | 5-May-00 | 99 | A4500F | NITROGEN, NITRATE (AS N) | 71.1 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| 90MW0015 | 5-May-00 | 99 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 32.5 | | µg/L | 1.5 | 3 | NA | | |
| 90MW0015 | 5-May-00 | 99 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 29.4 | | µg/L | 0.6 | 2 | NA | | |
| 90MW0015 | 5-May-00 | 99 | C200.7 | SODIUM (TOTAL) | 9730 | | µg/L | 74.8 | 5000 | 20000 | ORSG | No |
| 90MW0015 | 5-May-00 | 99 | C200.7 | ZINC (TOTAL) | 131 | | µg/L | 2.6 | 20 | 5000 | SMCL | No |
| 90MW0015 | 7-Sep-00 | 99 | C200.7 | BARIUM (TOTAL) | 3.9 | J | µg/L | 0.3 | 200 | 2000 | MCL, MMCL | No |
| 90MW0015 | 7-Sep-00 | 99 | C200.7 | CADMIUM (TOTAL) | **13.3** | | µg/L | 0.7 | 5 | 5 | MCL, MMCL | Yes |
| 90MW0015 | 7-Sep-00 | 99 | C200.7 | CALCIUM (TOTAL) | 1260 | J | µg/L | 71.9 | 5000 | NA | | |
| 90MW0015 | 7-Sep-00 | 99 | C200.7 | CHROMIUM (TOTAL) | 1.4 | J | µg/L | 0.7 | 10 | 100 | MCL, MMCL | No |
| 90MW0015 | 7-Sep-00 | 99 | C200.7 | COPPER (TOTAL) | 43.2 | | µg/L | 1.3 | 25 | 1300 | MMCL | No |
| 90MW0015 | 7-Sep-00 | 99 | C200.7 | MAGNESIUM (TOTAL) | 677 | J | µg/L | 72.8 | 5000 | NA | | |
| 90MW0015 | 7-Sep-00 | 99 | C200.7 | SODIUM (TOTAL) | 11600 | | µg/L | 158 | 5000 | 20000 | ORSG | No |
| 90MW0015 | 7-Sep-00 | 99 | C200.7 | ZINC (TOTAL) | 11.6 | J | µg/L | 0.3 | 20 | 5000 | SMCL | No |
| 90MW0015 | 13-Dec-00 | 99 | C200.7 | CADMIUM (TOTAL) | **7.4** | | µg/L | 0.5 | 5 | 5 | MCL, MMCL | Yes |
| 90MW0015 | 13-Dec-00 | 99 | C200.7 | CALCIUM (TOTAL) | 1440 | J | µg/L | 47.4 | 5000 | NA | | |

## Appendix E-1
## Comparison of Detected Concentrations in Groundwater at FS-12 to Drinking Water Standards
## January - December 2000

| Location Identification | Date | Depth (feet) | Method | Analyte | Result | Qualifier | Units | DL | RL | Standard (µg/L) | Type | Standard Exceeded ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0015 | 13-Dec-00 | 99 | C200.7 | CHROMIUM (TOTAL) | 9.7 | J | µg/L | 0.7 | 10 | 100 | MCL, MMCL | No |
| 90MW0015 | 13-Dec-00 | 99 | C200.7 | MAGNESIUM (TOTAL) | 800 | J | µg/L | 59.4 | 5000 | NA | | |
| 90MW0015 | 13-Dec-00 | 99 | C200.7 | SODIUM (TOTAL) | 11100 | | µg/L | 385 | 5000 | 20000 | ORSG | No |
| 90MW0019 | 11-Dec-00 | 163.5 | CVOL | BENZENE | 0.56 | J | µg/L | 0.11 | 1 | 5 | MCL, MMCL | No |
| 90MW0019 | 11-Dec-00 | 163.5 | CVOL | ETHYLBENZENE | 3.1 | | µg/L | 0.1 | 1 | 700 | MCL, MMCL | No |
| 90MW0019 | 11-Dec-00 | 163.5 | CVOL | XYLENES, TOTAL | 1.7 | | µg/L | 0.11 | 1 | 10000 | MMCL | No |
| 90MW0020 | 31-Jan-00 | 151 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 26.1 | | mg/L | 2.2 | 10 | NA | | |
| 90MW0020 | 31-Jan-00 | 151 | MCTNP | NITROGEN | 153 | | µg/L | 8.7 | 30 | NA | | |
| 90MW0020 | 31-Jan-00 | 151 | A4500H | NITROGEN, AMMONIA (AS N) | 118 | | µg/L | 5 | 10 | NA | | |
| 90MW0020 | 31-Jan-00 | 151 | A4500F | NITROGEN, NITRATE (AS N) | 13 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| 90MW0020 | 31-Jan-00 | 151 | A4500B | NITROGEN, NITRITE | 1.4 | J | µg/L | 0.2 | 3 | 1000 | MCL, MMCL | No |
| 90MW0020 | 31-Jan-00 | 151 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 71.6 | | µg/L | 1.5 | 3 | NA | | |
| 90MW0020 | 31-Jan-00 | 151 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 66.5 | | µg/L | 0.6 | 2 | NA | | |
| 90MW0020 | 1-Mar-00 | 151 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 23.4 | | mg/L | 2.2 | 5 | NA | | |
| 90MW0020 | 1-Mar-00 | 151 | E415.1 | DISSOLVED ORGANIC CARBON | 1.6 | | mg/L | 0.43 | 1 | NA | | |
| 90MW0020 | 1-Mar-00 | 151 | MCTNP | NITROGEN | 182 | | µg/L | 8.7 | 30 | NA | | |
| 90MW0020 | 1-Mar-00 | 151 | A4500H | NITROGEN, AMMONIA (AS N) | 120 | | µg/L | 5 | 10 | NA | | |
| 90MW0020 | 1-Mar-00 | 151 | A4500F | NITROGEN, NITRATE (AS N) | 14.1 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| 90MW0020 | 1-Mar-00 | 151 | A4500B | NITROGEN, NITRITE | 1.5 | J | µg/L | 0.2 | 3 | 1000 | MCL, MMCL | No |
| 90MW0020 | 1-Mar-00 | 151 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 78.7 | | µg/L | 1.5 | 3 | NA | | |
| 90MW0020 | 1-Mar-00 | 151 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 71.3 | | µg/L | 0.6 | 2 | NA | | |
| 90MW0020 | 1-Mar-00 | 151 | E415.1 | TOTAL ORGANIC CARBON | 1 | | mg/L | 0.43 | 1 | NA | | |
| 90MW0020 | 15-Mar-00 | 151 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.13** | | µg/L | 0.0051 | 0.01 | 0.02 | MMCL | Yes |
| 90MW0020 | 15-Mar-00 | 151 | SW6010 | ARSENIC (TOTAL) | 3.4 | J | µg/L | 3.4 | 10 | 50 | MCL, MMCL | No |
| 90MW0020 | 15-Mar-00 | 151 | CVOL | BENZENE | **680** | | µg/L | 5.5 | 50 | 5 | MCL, MMCL | Yes |
| 90MW0020 | 15-Mar-00 | 151 | SW6010 | CALCIUM (TOTAL) | 3530 | J | µg/L | 38.5 | 5000 | NA | | |
| 90MW0020 | 15-Mar-00 | 151 | SW6010 | CHROMIUM (TOTAL) | 1.3 | J | µg/L | 1.2 | 10 | 100 | MCL, MMCL | No |
| 90MW0020 | 15-Mar-00 | 151 | SW6010 | COBALT (TOTAL) | 5.5 | J | µg/L | 1 | 50 | NA | | No |
| 90MW0020 | 15-Mar-00 | 151 | SW6010 | IRON (TOTAL) | **1190** | | µg/L | 11.2 | 100 | 300 | SMCL | Yes |
| 90MW0020 | 15-Mar-00 | 151 | SW6010 | MAGNESIUM (TOTAL) | 1910 | J | µg/L | 42.5 | 5000 | NA | | |
| 90MW0020 | 15-Mar-00 | 151 | SW6010 | MANGANESE (TOTAL) | **297** | | µg/L | 0.8 | 15 | 50 | SMCL | Yes |
| 90MW0020 | 15-Mar-00 | 151 | SW6010 | NICKEL (TOTAL) | 2.5 | J | µg/L | 1.5 | 40 | 100 | ORSG | No |
| 90MW0020 | 15-Mar-00 | 151 | SW6010 | POTASSIUM (TOTAL) | 660 | J | µg/L | 25.7 | 5000 | NA | | |
| 90MW0020 | 15-Mar-00 | 151 | SW6010 | SODIUM (TOTAL) | 8410 | | µg/L | 355 | 5000 | 20000 | ORSG | No |
| 90MW0020 | 31-Mar-00 | 151 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 24.1 | | mg/L | 2.2 | 5 | NA | | |
| 90MW0020 | 31-Mar-00 | 151 | E415.1 | DISSOLVED ORGANIC CARBON | 1.1 | | mg/L | 0.43 | 1 | NA | | |
| 90MW0020 | 31-Mar-00 | 151 | MCTNP | NITROGEN | 126 | | µg/L | 8.7 | 30 | NA | | |
| 90MW0020 | 31-Mar-00 | 151 | A4500H | NITROGEN, AMMONIA (AS N) | 77.3 | | µg/L | 5 | 10 | NA | | |
| 90MW0020 | 31-Mar-00 | 151 | A4500F | NITROGEN, NITRATE (AS N) | 11.8 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| 90MW0020 | 31-Mar-00 | 151 | A4500B | NITROGEN, NITRITE | 2.5 | J | µg/L | 0.2 | 3 | 1000 | MCL, MMCL | No |
| 90MW0020 | 31-Mar-00 | 151 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 70.7 | | µg/L | 1.5 | 3 | NA | | |
| 90MW0020 | 31-Mar-00 | 151 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 63.6 | | µg/L | 0.6 | 2 | NA | | |
| 90MW0020 | 31-Mar-00 | 151 | E415.1 | TOTAL ORGANIC CARBON | 1.1 | | mg/L | 0.43 | 1 | NA | | |
| 90MW0020 | 3-May-00 | 151 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.18** | | µg/L | 0.0051 | 0.01 | 0.02 | MMCL | Yes |
| 90MW0020 | 3-May-00 | 151 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 25.6 | | mg/L | 2.2 | 5 | NA | | |
| 90MW0020 | 3-May-00 | 151 | C200.7 | ARSENIC (TOTAL) | 3.4 | J | µg/L | 2.5 | 10 | 50 | MCL, MMCL | No |

**Appendix E-1**
**Comparison of Detected Concentrations in Groundwater at FS-12 to Drinking Water Standards**
**January - December 2000**

| Location Identification | Date | Depth (feet) | Method | Analyte | Result | Qualifier | Units | DL | RL | Standard (µg/L) | Type | Standard Exceeded ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0020 | 3-May-00 | 151 | C200.7 | BARIUM (TOTAL) | 2.6 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90MW0020 | 3-May-00 | 151 | CVOL | BENZENE | **750** | | µg/L | 5.5 | 50 | 5 | MCL, MMCL | Yes |
| 90MW0020 | 3-May-00 | 151 | C200.7 | CALCIUM (TOTAL) | 3530 | J | µg/L | 46.6 | 5000 | NA | | |
| 90MW0020 | 3-May-00 | 151 | C200.7 | COBALT (TOTAL) | 12.3 | J | µg/L | 0.7 | 50 | NA | | No |
| 90MW0020 | 3-May-00 | 151 | C200.7 | IRON (TOTAL) | **1290** | | µg/L | 28.4 | 100 | 300 | SMCL | Yes |
| 90MW0020 | 3-May-00 | 151 | C200.7 | MAGNESIUM (TOTAL) | 1850 | J | µg/L | 43.7 | 5000 | NA | | |
| 90MW0020 | 3-May-00 | 151 | C200.7 | MANGANESE (TOTAL) | **298** | | µg/L | 1 | 15 | 50 | SMCL | Yes |
| 90MW0020 | 3-May-00 | 151 | C200.7 | NICKEL (TOTAL) | 2.2 | J | µg/L | 1.7 | 40 | 100 | ORSG | No |
| 90MW0020 | 3-May-00 | 151 | MCTNP | NITROGEN | 152 | | µg/L | 8.7 | 30 | NA | | |
| 90MW0020 | 3-May-00 | 151 | A4500H | NITROGEN, AMMONIA (AS N) | 137 | | µg/L | 5 | 10 | NA | | |
| 90MW0020 | 3-May-00 | 151 | A4500B | NITROGEN, NITRITE | 3.3 | | µg/L | 0.2 | 3 | 1000 | MCL, MMCL | No |
| 90MW0020 | 3-May-00 | 151 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 80.7 | | µg/L | 1.5 | 3 | NA | | |
| 90MW0020 | 3-May-00 | 151 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 72.6 | | µg/L | 0.6 | 2 | NA | | |
| 90MW0020 | 3-May-00 | 151 | C270.2 | SELENIUM (TOTAL) | 1.9 | J | µg/L | 1.4 | 5 | 50 | MCL, MMCL | No |
| 90MW0020 | 3-May-00 | 151 | C200.7 | SODIUM (TOTAL) | 7950 | | µg/L | 435 | 5000 | 20000 | ORSG | No |
| 90MW0020 | 30-May-00 | 151 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 27 | | mg/L | 2.2 | 5 | NA | | |
| 90MW0020 | 30-May-00 | 151 | E415.1 | DISSOLVED ORGANIC CARBON | 1.6 | | mg/L | 0.43 | 1 | NA | | |
| 90MW0020 | 30-May-00 | 151 | MCTNP | NITROGEN | 486 | | µg/L | 8.7 | 30 | NA | | |
| 90MW0020 | 30-May-00 | 151 | A4500H | NITROGEN, AMMONIA (AS N) | 293 | | µg/L | 10 | 20 | NA | | |
| 90MW0020 | 30-May-00 | 151 | A4500F | NITROGEN, NITRATE (AS N) | 11.3 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| 90MW0020 | 30-May-00 | 151 | A4500B | NITROGEN, NITRITE | 3.5 | | µg/L | 0.2 | 3 | 1000 | MCL, MMCL | No |
| 90MW0020 | 30-May-00 | 151 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 109 | | µg/L | 1.5 | 3 | NA | | |
| 90MW0020 | 30-May-00 | 151 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 99.2 | | µg/L | 0.6 | 2 | NA | | |
| 90MW0020 | 30-May-00 | 151 | E415.1 | TOTAL ORGANIC CARBON | 1.5 | | mg/L | 0.43 | 1 | NA | | |
| 90MW0020 | 12-Sep-00 | 151 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.18** | | µg/L | 0.0048 | 0.01 | 0.02 | MMCL | Yes |
| 90MW0020 | 12-Sep-00 | 151 | CVOL | BENZENE | 4.8 | | µg/L | 0.11 | 1 | 5 | MCL, MMCL | No |
| 90MW0020 | 12-Sep-00 | 151 | C200.7 | CALCIUM (TOTAL) | 2690 | J | µg/L | 71.9 | 5000 | NA | | |
| 90MW0020 | 12-Sep-00 | 151 | C200.7 | COBALT (TOTAL) | 9.6 | J | µg/L | 1.1 | 50 | NA | | No |
| 90MW0020 | 12-Sep-00 | 151 | C200.7 | IRON (TOTAL) | **974** | | µg/L | 23.3 | 100 | 300 | SMCL | Yes |
| 90MW0020 | 12-Sep-00 | 151 | C200.7 | MAGNESIUM (TOTAL) | 1340 | J | µg/L | 72.8 | 5000 | NA | | |
| 90MW0020 | 12-Sep-00 | 151 | C200.7 | MANGANESE (TOTAL) | **225** | | µg/L | 1.4 | 15 | 50 | SMCL | Yes |
| 90MW0020 | 12-Sep-00 | 151 | C200.7 | SODIUM (TOTAL) | 6330 | | µg/L | 158 | 5000 | 20000 | ORSG | No |
| 90MW0020 | 12-Sep-00 | 151 | CVOL | TOLUENE | 19 | | mg/L | 0.09 | 1 | 1000 | MMCL | No |
| 90MW0020 | 13-Dec-00 | 151 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.35** | | µg/L | 0.0048 | 0.01 | 0.02 | MMCL | Yes |
| 90MW0020 | 13-Dec-00 | 151 | CVOL | BENZENE | **7** | | µg/L | 0.22 | 2 | 5 | MCL, MMCL | Yes |
| 90MW0020 | 13-Dec-00 | 151 | C200.7 | CALCIUM (TOTAL) | 2410 | J | µg/L | 47.4 | 5000 | NA | | |
| 90MW0020 | 13-Dec-00 | 151 | C200.7 | IRON (TOTAL) | **644** | | µg/L | 35.1 | 100 | 300 | SMCL | Yes |
| 90MW0020 | 13-Dec-00 | 151 | C200.7 | MAGNESIUM (TOTAL) | 1300 | J | µg/L | 59.4 | 5000 | NA | | |
| 90MW0020 | 13-Dec-00 | 151 | C200.7 | MANGANESE (TOTAL) | **191** | | µg/L | 1 | 15 | 50 | SMCL | Yes |
| 90MW0020 | 13-Dec-00 | 151 | C200.7 | POTASSIUM (TOTAL) | 620 | J | µg/L | 21 | 5000 | NA | | |
| 90MW0020 | 13-Dec-00 | 151 | C200.7 | SODIUM (TOTAL) | 6490 | | µg/L | 385 | 5000 | 20000 | ORSG | No |
| 90MW0020 | 13-Dec-00 | 151 | CVOL | TOLUENE | 35 | | µg/L | 0.18 | 2 | 1000 | MMCL | No |
| 90MW0024 | 14-Sep-00 | 153.5 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.13** | | µg/L | 0.0051 | 0.01 | 0.02 | MMCL | Yes |
| 90MW0024 | 14-Sep-00 | 153.5 | CVOL | CHLOROFORM | 1.2 | | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90MW0025 | 15-Mar-00 | 162 | CVOL | CHLOROFORM | 2.1 | | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90MW0025 | 12-Sep-00 | 162 | CVOL | CHLOROFORM | 1.9 | | µg/L | 0.08 | 1 | 5 | ORSG | No |

## Appendix E-1
## Comparison of Detected Concentrations in Groundwater at FS-12 to Drinking Water Standards
## January - December 2000

| Location Identification | Date | Depth (feet) | Method | Analyte | Result | Qualifier | Units | DL | RL | Standard (µg/L) | Type | Standard Exceeded ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0025 | 13-Dec-00 | 162 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.12** | | µg/L | 0.0048 | 0.01 | 0.02 | MMCL | Yes |
| 90MW0025 | 13-Dec-00 | 162 | C200.7 | CALCIUM (TOTAL) | 1610 | J | µg/L | 47.4 | 5000 | NA | | |
| 90MW0025 | 13-Dec-00 | 162 | CVOL | CHLOROFORM | 1.9 | | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90MW0025 | 13-Dec-00 | 162 | C200.7 | COPPER (TOTAL) | 2 | J | µg/L | 1.6 | 25 | 1300 | MMCL | No |
| 90MW0025 | 13-Dec-00 | 162 | C200.7 | MAGNESIUM (TOTAL) | 1030 | J | µg/L | 59.4 | 5000 | NA | | |
| 90MW0025 | 13-Dec-00 | 162 | C200.7 | SODIUM (TOTAL) | 6530 | | µg/L | 385 | 5000 | 20000 | ORSG | No |
| 90MW0027 | 16-Mar-00 | 166 | CVOL | CHLOROFORM | 1.3 | | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90MW0027 | 12-Sep-00 | 166 | CVOL | CHLOROFORM | 0.94 | J | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90MW0027 | 13-Dec-00 | 166 | C200.7 | CALCIUM (TOTAL) | 2820 | J | µg/L | 47.4 | 5000 | NA | | |
| 90MW0027 | 13-Dec-00 | 166 | CVOL | CHLOROFORM | 0.96 | J | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90MW0027 | 13-Dec-00 | 166 | C200.7 | CHROMIUM (TOTAL) | 2 | J | µg/L | 0.7 | 10 | 100 | MCL, MMCL | No |
| 90MW0027 | 13-Dec-00 | 166 | C200.7 | MAGNESIUM (TOTAL) | 1210 | J | µg/L | 59.4 | 5000 | NA | | |
| 90MW0027 | 13-Dec-00 | 166 | C200.7 | POTASSIUM (TOTAL) | 706 | J | µg/L | 21 | 5000 | NA | | |
| 90MW0027 | 13-Dec-00 | 166 | C200.7 | SODIUM (TOTAL) | 6580 | | µg/L | 385 | 5000 | 20000 | ORSG | No |
| 90MW0028 | 14-Mar-00 | 179 | E504 | 1,2-DIBROMOETHANE (EDB) | **7.8** | | µg/L | 0.26 | 0.5 | 0.02 | MMCL | Yes |
| 90MW0028 | 14-Mar-00 | 179 | CVOL | 1,2-DIBROMOETHANE (EDB) | **8.3** | | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90MW0028 | 14-Mar-00 | 179 | CVOL | CHLOROFORM | 1.7 | | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90MW0028 | 5-May-00 | 179 | CVOL | 1,2-DIBROMOETHANE (EDB) | **3.5** | | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90MW0028 | 5-May-00 | 179 | E504 | 1,2-DIBROMOETHANE (EDB) | **3.6** | | µg/L | 0.1 | 0.2 | 0.02 | MMCL | Yes |
| 90MW0028 | 11-Sep-00 | 179 | CVOL | 1,2-DIBROMOETHANE (EDB) | **3.1** | | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90MW0028 | 11-Sep-00 | 179 | E504 | 1,2-DIBROMOETHANE (EDB) | **3.4** | | µg/L | 0.051 | 0.1 | 0.02 | MMCL | Yes |
| 90MW0028 | 11-Sep-00 | 179 | CVOL | CHLOROFORM | 1.3 | | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90MW0028 | 12-Dec-00 | 179 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.9** | | µg/L | 0.048 | 0.1 | 0.02 | MMCL | Yes |
| 90MW0028 | 12-Dec-00 | 179 | CVOL | 1,2-DIBROMOETHANE (EDB) | **1.9** | | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90MW0028 | 12-Dec-00 | 179 | C200.7 | BARIUM (TOTAL) | 3.5 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90MW0028 | 12-Dec-00 | 179 | C200.7 | CALCIUM (TOTAL) | 2120 | J | µg/L | 47.4 | 5000 | NA | | |
| 90MW0028 | 12-Dec-00 | 179 | CVOL | CHLOROFORM | 1.3 | | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90MW0028 | 12-Dec-00 | 179 | C200.7 | IRON (TOTAL) | 170 | | µg/L | 35.1 | 100 | 300 | SMCL | No |
| 90MW0028 | 12-Dec-00 | 179 | C200.7 | MAGNESIUM (TOTAL) | 996 | J | µg/L | 59.4 | 5000 | NA | | |
| 90MW0028 | 12-Dec-00 | 179 | C200.7 | MANGANESE (TOTAL) | 19 | | µg/L | 1 | 15 | 50 | SMCL | No |
| 90MW0028 | 12-Dec-00 | 179 | C200.7 | NICKEL (TOTAL) | 5.3 | J | µg/L | 1.1 | 40 | 100 | ORSG | No |
| 90MW0028 | 12-Dec-00 | 179 | C200.7 | SODIUM (TOTAL) | 6730 | | µg/L | 385 | 5000 | 20000 | ORSG | No |
| 90MW0032 | 13-Sep-00 | 156.42 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.099** | | µg/L | 0.0051 | 0.01 | 0.02 | MMCL | Yes |
| 90MW0032 | 13-Sep-00 | 156.42 | CVOL | CHLOROFORM | 0.8 | J | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90MW0033 | 14-Dec-00 | 157.21 | C200.7 | ALUMINUM (TOTAL) | **893** | | µg/L | 54.7 | 200 | 200 | SMCL | Yes |
| 90MW0033 | 14-Dec-00 | 157.21 | C200.7 | BARIUM (TOTAL) | 5.7 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90MW0033 | 14-Dec-00 | 157.21 | C200.7 | CALCIUM (TOTAL) | 2220 | J | µg/L | 47.4 | 5000 | NA | | |
| 90MW0033 | 14-Dec-00 | 157.21 | CVOL | CHLOROFORM | 0.81 | J | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90MW0033 | 14-Dec-00 | 157.21 | C200.7 | CHROMIUM (TOTAL) | 12.5 | | µg/L | 0.7 | 10 | 100 | MCL, MMCL | No |
| 90MW0033 | 14-Dec-00 | 157.21 | C200.7 | COBALT (TOTAL) | 1.4 | J | µg/L | 1.1 | 50 | NA | | No |
| 90MW0033 | 14-Dec-00 | 157.21 | C200.7 | COPPER (TOTAL) | 14 | J | µg/L | 1.6 | 25 | 1300 | MMCL | No |
| 90MW0033 | 14-Dec-00 | 157.21 | C200.7 | IRON (TOTAL) | **1350** | | µg/L | 35.1 | 100 | 300 | SMCL | Yes |
| 90MW0033 | 14-Dec-00 | 157.21 | C200.7 | MAGNESIUM (TOTAL) | 1200 | J | µg/L | 59.4 | 5000 | NA | | |
| 90MW0033 | 14-Dec-00 | 157.21 | C200.7 | MANGANESE (TOTAL) | 13.3 | J | µg/L | 1 | 15 | 50 | SMCL | No |
| 90MW0033 | 14-Dec-00 | 157.21 | C200.7 | NICKEL (TOTAL) | 37.5 | J | µg/L | 1.1 | 40 | 100 | ORSG | No |
| 90MW0033 | 14-Dec-00 | 157.21 | C200.7 | POTASSIUM (TOTAL) | 973 | J | µg/L | 21 | 5000 | NA | | |

**Appendix E-1**
**Comparison of Detected Concentrations in Groundwater at FS-12 to Drinking Water Standards**
**January - December 2000**

| Location Identification | Date | Depth (feet) | Method | Analyte | Result | Qualifier | Units | DL | RL | Standard (µg/L) | Type | Standard Exceeded ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0033 | 14-Dec-00 | 157.21 | C200.7 | SODIUM (TOTAL) | 7740 | | µg/L | 385 | 5000 | 20000 | ORSG | No |
| 90MW0036 | 20-Mar-00 | 109.3 | CVOL | CHLOROFORM | 0.69 | J | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90MW0036 | 7-Sep-00 | 107.08 | CVOL | CHLOROFORM | 0.67 | J | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90MW0036 | 14-Dec-00 | 107.08 | CVOL | CHLOROFORM | 0.92 | J | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90MW0040 | 5-Jan-00 | 190.1 | CVOL | 1,2-DIBROMOETHANE (EDB) | **4.9** | | µg/L | 0.16 | 1 | 0.02 | MMCL | Yes |
| 90MW0040 | 5-Jan-00 | 190.1 | E504 | 1,2-DIBROMOETHANE (EDB) | **6.8** | | µg/L | 0.14 | 0.5 | 0.02 | MMCL | Yes |
| 90MW0040 | 5-Jan-00 | 190.1 | CVOL | CHLOROFORM | 1.2 | | µg/L | 0.11 | 1 | 5 | ORSG | No |
| 90MW0040 | 15-Mar-00 | 190.1 | E504 | 1,2-DIBROMOETHANE (EDB) | **7.5** | | µg/L | 0.26 | 0.5 | 0.02 | MMCL | Yes |
| 90MW0040 | 15-Mar-00 | 190.1 | CVOL | 1,2-DIBROMOETHANE (EDB) | **11** | | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90MW0040 | 15-Mar-00 | 190.1 | CVOL | CHLOROFORM | 1.7 | | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90MW0040 | 5-May-00 | 190.1 | CVOL | 1,2-DIBROMOETHANE (EDB) | **9.4** | | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90MW0040 | 5-May-00 | 190.1 | E504 | 1,2-DIBROMOETHANE (EDB) | **9.8** | | µg/L | 0.26 | 0.5 | 0.02 | MMCL | Yes |
| 90MW0040 | 13-Sep-00 | 190.09 | CVOL | 1,2-DIBROMOETHANE (EDB) | **19** | | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90MW0040 | 13-Sep-00 | 190.09 | E504 | 1,2-DIBROMOETHANE (EDB) | **19** | | µg/L | 0.26 | 0.5 | 0.02 | MMCL | Yes |
| 90MW0040 | 13-Sep-00 | 190.09 | CVOL | 1,2-DICHLOROETHANE | 0.77 | J | µg/L | 0.09 | 1 | 5 | MCL, MMCL | No |
| 90MW0040 | 13-Sep-00 | 190.09 | CVOL | CHLOROFORM | 1.3 | | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90MW0040 | 14-Dec-00 | 190.09 | E504 | 1,2-DIBROMOETHANE (EDB) | **22** | | µg/L | 0.48 | 1 | 0.02 | MMCL | Yes |
| 90MW0040 | 14-Dec-00 | 190.09 | CVOL | 1,2-DIBROMOETHANE (EDB) | **24** | | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90MW0040 | 14-Dec-00 | 190.09 | CVOL | 1,2-DICHLOROETHANE | 1 | | µg/L | 0.09 | 1 | 5 | MCL, MMCL | No |
| 90MW0040 | 14-Dec-00 | 190.09 | C200.7 | CALCIUM (TOTAL) | 2030 | J | µg/L | 47.4 | 5000 | NA | | |
| 90MW0040 | 14-Dec-00 | 190.09 | CVOL | CHLOROFORM | 1.3 | | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90MW0040 | 14-Dec-00 | 190.09 | C200.7 | IRON (TOTAL) | 49.1 | J | µg/L | 35.1 | 100 | 300 | SMCL | No |
| 90MW0040 | 14-Dec-00 | 190.09 | C200.7 | MAGNESIUM (TOTAL) | 806 | J | µg/L | 59.4 | 5000 | NA | | |
| 90MW0040 | 14-Dec-00 | 190.09 | C200.7 | NICKEL (TOTAL) | 1.9 | J | µg/L | 1.1 | 40 | 100 | ORSG | No |
| 90MW0040 | 14-Dec-00 | 190.09 | C200.7 | SODIUM (TOTAL) | 6860 | J | µg/L | 385 | 5000 | 20000 | ORSG | No |
| 90MW0041 | 21-Mar-00 | 127.9 | CVOL | ACETONE | 45 | J | µg/L | 0.71 | 5 | 3000 | ORSG | No |
| 90MW0042 | 13-Sep-00 | 152.81 | C200.7 | BARIUM (TOTAL) | 0.9 | J | µg/L | 0.3 | 200 | 2000 | MCL, MMCL | No |
| 90MW0042 | 13-Sep-00 | 152.81 | C200.7 | CALCIUM (TOTAL) | 1940 | J | µg/L | 71.9 | 5000 | NA | | |
| 90MW0042 | 13-Sep-00 | 152.81 | C200.7 | MAGNESIUM (TOTAL) | 883 | J | µg/L | 72.8 | 5000 | NA | | |
| 90MW0042 | 13-Sep-00 | 152.81 | C200.7 | POTASSIUM (TOTAL) | 528 | J | µg/L | 26.4 | 5000 | NA | | |
| 90MW0042 | 13-Sep-00 | 152.81 | C200.7 | SODIUM (TOTAL) | 6910 | | µg/L | 158 | 5000 | 20000 | ORSG | No |
| 90MW0042 | 14-Dec-00 | 152.81 | CVOL | CHLOROFORM | 1.4 | | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90MW0049 | 2-May-00 | 176.7 | E504 | 1,2-DIBROMOETHANE (EDB) | 0.02 | | µg/L | 0.005 | 0.01 | 0.02 | MMCL | No |
| 90MW0049 | 6-Sep-00 | 176.69 | E504 | 1,2-DIBROMOETHANE (EDB) | 0.009 | J | µg/L | 0.005 | 0.01 | 0.02 | MMCL | No |
| 90MW0049 | 25-Oct-00 | 176.69 | E504 | 1,2-DIBROMOETHANE (EDB) | 0.006 | J | µg/L | 0.005 | 0.01 | 0.02 | MMCL | No |
| 90MW0050 | 17-Feb-00 | 87.5 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.03** | | µg/L | 0.005 | 0.01 | 0.02 | MMCL | Yes |
| 90MW0050 | 20-Mar-00 | 87.5 | CVOL | CHLOROFORM | 0.88 | J | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90MW0050 | 13-Sep-00 | 88.2 | C200.7 | CALCIUM (TOTAL) | 1560 | J | µg/L | 71.9 | 5000 | NA | | |
| 90MW0050 | 13-Sep-00 | 88.2 | C200.7 | MAGNESIUM (TOTAL) | 958 | J | µg/L | 72.8 | 5000 | NA | | |
| 90MW0050 | 13-Sep-00 | 88.2 | C200.7 | SODIUM (TOTAL) | 6910 | | µg/L | 158 | 5000 | 20000 | ORSG | No |
| 90MW0053 | 15-Mar-00 | 190.5 | CVOL | 1,2-DIBROMOETHANE (EDB) | **0.9** | J | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90MW0053 | 15-Mar-00 | 190.5 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.92** | | µg/L | 0.026 | 0.05 | 0.02 | MMCL | Yes |
| 90MW0053 | 15-Mar-00 | 190.5 | CVOL | CHLOROFORM | 0.81 | J | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90MW0053 | 4-May-00 | 190.5 | CVOL | 1,2-DIBROMOETHANE (EDB) | **1.2** | | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90MW0053 | 4-May-00 | 190.5 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.6** | | µg/L | 0.051 | 0.1 | 0.02 | MMCL | Yes |
| 90MW0053 | 13-Sep-00 | 191.67 | CVOL | 1,2-DIBROMOETHANE (EDB) | **1** | | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |

**Appendix E-1**
**Comparison of Detected Concentrations in Groundwater at FS-12 to Drinking Water Standards**
**January - December 2000**

| Location Identification | Date | Depth (feet) | Method | Analyte | Result | Qualifier | Units | DL | RL | Standard (µg/L) | Type | Standard Exceeded ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0053 | 13-Sep-00 | 191.67 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.3** | | µg/L | 0.019 | 0.04 | 0.02 | MMCL | Yes |
| 90MW0053 | 13-Sep-00 | 191.67 | C200.7 | BARIUM (TOTAL) | 1.4 | J | µg/L | 0.3 | 200 | 2000 | MCL, MMCL | No |
| 90MW0053 | 13-Sep-00 | 191.67 | C200.7 | CALCIUM (TOTAL) | 3370 | J | µg/L | 71.9 | 5000 | NA | | |
| 90MW0053 | 13-Sep-00 | 191.67 | CVOL | CHLOROFORM | 0.72 | J | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90MW0053 | 13-Sep-00 | 191.67 | C200.7 | CHROMIUM (TOTAL) | 2.1 | J | µg/L | 0.7 | 10 | 100 | MCL, MMCL | No |
| 90MW0053 | 13-Sep-00 | 191.67 | C200.7 | IRON (TOTAL) | **489** | | µg/L | 23.3 | 100 | 300 | SMCL | Yes |
| 90MW0053 | 13-Sep-00 | 191.67 | C200.7 | MAGNESIUM (TOTAL) | 1600 | J | µg/L | 72.8 | 5000 | NA | | |
| 90MW0053 | 13-Sep-00 | 191.67 | C200.7 | NICKEL (TOTAL) | 3.8 | J | µg/L | 1.6 | 40 | 100 | ORSG | No |
| 90MW0053 | 13-Sep-00 | 191.67 | C200.7 | SODIUM (TOTAL) | 6320 | | µg/L | 158 | 5000 | 20000 | ORSG | No |
| 90MW0053 | 18-Dec-00 | 191.67 | CVOL | 1,2-DIBROMOETHANE (EDB) | **0.19** | J | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| 90MW0053 | 18-Dec-00 | 191.67 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.23** | | µg/L | 0.0048 | 0.01 | 0.02 | MMCL | Yes |
| 90MW0053 | 18-Dec-00 | 191.67 | CVOL | CHLOROFORM | 0.62 | J | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90MW0055 | 13-Sep-00 | 221.5 | C200.7 | BARIUM (TOTAL) | 2.7 | J | µg/L | 0.3 | 200 | 2000 | MCL, MMCL | No |
| 90MW0055 | 13-Sep-00 | 221.5 | C200.7 | CALCIUM (TOTAL) | 4040 | J | µg/L | 71.9 | 5000 | NA | | |
| 90MW0055 | 13-Sep-00 | 221.5 | C200.7 | IRON (TOTAL) | **1120** | | µg/L | 23.3 | 100 | 300 | SMCL | Yes |
| 90MW0055 | 13-Sep-00 | 221.5 | C200.7 | MAGNESIUM (TOTAL) | 1960 | J | µg/L | 72.8 | 5000 | NA | | |
| 90MW0055 | 13-Sep-00 | 221.5 | C200.7 | MANGANESE (TOTAL) | **76.8** | | µg/L | 1.4 | 15 | 50 | SMCL | Yes |
| 90MW0055 | 13-Sep-00 | 221.5 | C200.7 | POTASSIUM (TOTAL) | 783 | J | µg/L | 26.4 | 5000 | NA | | |
| 90MW0055 | 13-Sep-00 | 221.5 | C200.7 | SODIUM (TOTAL) | 7450 | | µg/L | 158 | 5000 | 20000 | ORSG | No |
| 90MW0056 | 14-Sep-00 | 215.5 | C200.7 | BARIUM (TOTAL) | 6.9 | J | µg/L | 0.3 | 200 | 2000 | MCL, MMCL | No |
| 90MW0056 | 14-Sep-00 | 215.5 | C200.7 | CALCIUM (TOTAL) | 7930 | | µg/L | 71.9 | 5000 | NA | | |
| 90MW0056 | 14-Sep-00 | 215.5 | C200.7 | MAGNESIUM (TOTAL) | 1720 | J | µg/L | 72.8 | 5000 | NA | | |
| 90MW0056 | 14-Sep-00 | 215.5 | C200.7 | MANGANESE (TOTAL) | **119** | | µg/L | 1.4 | 15 | 50 | SMCL | Yes |
| 90MW0056 | 14-Sep-00 | 215.5 | C200.7 | POTASSIUM (TOTAL) | 1900 | J | µg/L | 26.4 | 5000 | NA | | |
| 90MW0056 | 14-Sep-00 | 215.5 | C200.7 | SODIUM (TOTAL) | 11100 | | µg/L | 158 | 5000 | 20000 | ORSG | No |
| 90MW0064 | 11-Dec-00 | 207.5 | CVOL | CHLOROFORM | 0.6 | J | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90MW0066 | 16-Mar-00 | 191 | SW6010 | CALCIUM (TOTAL) | 4930 | J | µg/L | 38.5 | 5000 | NA | | |
| 90MW0066 | 16-Mar-00 | 191 | SW6010 | COBALT (TOTAL) | 1.5 | J | µg/L | 1 | 50 | NA | | No |
| 90MW0066 | 16-Mar-00 | 191 | SW6010 | IRON (TOTAL) | **1640** | | µg/L | 39.4 | 100 | 300 | SMCL | Yes |
| 90MW0066 | 16-Mar-00 | 191 | SW6010 | MAGNESIUM (TOTAL) | 1970 | J | µg/L | 42.5 | 5000 | NA | | |
| 90MW0066 | 16-Mar-00 | 191 | SW6010 | MANGANESE (TOTAL) | **164** | | µg/L | 0.8 | 15 | 50 | SMCL | Yes |
| 90MW0066 | 16-Mar-00 | 191 | SW6010 | NICKEL (TOTAL) | 1.7 | J | µg/L | 1.5 | 40 | 100 | ORSG | No |
| 90MW0066 | 16-Mar-00 | 191 | SW6010 | POTASSIUM (TOTAL) | 1300 | J | µg/L | 25.7 | 5000 | NA | | |
| 90MW0066 | 16-Mar-00 | 191 | SW6010 | SODIUM (TOTAL) | 9080 | | µg/L | 355 | 5000 | 20000 | ORSG | No |
| 90MW0066 | 4-May-00 | 191 | C200.7 | ARSENIC (TOTAL) | 3.2 | J | µg/L | 2.5 | 10 | 50 | MCL, MMCL | No |
| 90MW0066 | 4-May-00 | 191 | C200.7 | BARIUM (TOTAL) | 2.1 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90MW0066 | 4-May-00 | 191 | C200.7 | CALCIUM (TOTAL) | 5500 | | µg/L | 46.6 | 5000 | NA | | |
| 90MW0066 | 4-May-00 | 191 | C200.7 | IRON (TOTAL) | **1800** | | µg/L | 28.4 | 100 | 300 | SMCL | Yes |
| 90MW0066 | 4-May-00 | 191 | C200.7 | MAGNESIUM (TOTAL) | 2150 | J | µg/L | 43.7 | 5000 | NA | | |
| 90MW0066 | 4-May-00 | 191 | C200.7 | MANGANESE (TOTAL) | **175** | | µg/L | 1 | 15 | 50 | SMCL | Yes |
| 90MW0066 | 4-May-00 | 191 | C200.7 | POTASSIUM (TOTAL) | 1260 | J | µg/L | 24.1 | 5000 | NA | | |
| 90MW0066 | 4-May-00 | 191 | C200.7 | SODIUM (TOTAL) | 9080 | | µg/L | 435 | 5000 | 20000 | ORSG | No |
| 90MW0066 | 11-Sep-00 | 191 | C200.7 | ANTIMONY (TOTAL) | **6.2** | | µg/L | 5.5 | 6 | 6 | MMCL | Yes |
| 90MW0066 | 11-Sep-00 | 191 | C200.7 | BARIUM (TOTAL) | 5.5 | J | µg/L | 0.3 | 200 | 2000 | MCL, MMCL | No |
| 90MW0066 | 11-Sep-00 | 191 | C200.7 | CALCIUM (TOTAL) | 5390 | | µg/L | 71.9 | 5000 | NA | | |
| 90MW0066 | 11-Sep-00 | 191 | C200.7 | CHROMIUM (TOTAL) | 0.9 | J | µg/L | 0.7 | 10 | 100 | MCL, MMCL | No |

**Appendix E-1**
**Comparison of Detected Concentrations in Groundwater at FS-12 to Drinking Water Standards**
**January - December 2000**

| Location Identification | Date | Depth (feet) | Method | Analyte | Result | Qualifier | Units | DL | RL | Standard (µg/L) | Type | Standard Exceeded ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0066 | 11-Sep-00 | 191 | C200.7 | IRON (TOTAL) | **1840** | | µg/L | 23.3 | 100 | 300 | SMCL | Yes |
| 90MW0066 | 11-Sep-00 | 191 | C200.7 | MAGNESIUM (TOTAL) | 2130 | J | µg/L | 72.8 | 5000 | NA | | |
| 90MW0066 | 11-Sep-00 | 191 | C200.7 | MANGANESE (TOTAL) | **171** | | µg/L | 1.4 | 15 | 50 | SMCL | Yes |
| 90MW0066 | 11-Sep-00 | 191 | C200.7 | POTASSIUM (TOTAL) | 1260 | J | µg/L | 26.4 | 5000 | NA | | |
| 90MW0066 | 11-Sep-00 | 191 | C200.7 | SODIUM (TOTAL) | 9210 | | µg/L | 158 | 5000 | 20000 | ORSG | No |
| 90MW0066 | 12-Dec-00 | 191 | C200.7 | ARSENIC (TOTAL) | 6 | J | µg/L | 4.3 | 10 | 50 | MCL, MMCL | No |
| 90MW0066 | 12-Dec-00 | 191 | C200.7 | BARIUM (TOTAL) | 2.1 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90MW0066 | 12-Dec-00 | 191 | C200.7 | CALCIUM (TOTAL) | 5720 | | µg/L | 47.4 | 5000 | NA | | |
| 90MW0066 | 12-Dec-00 | 191 | C200.7 | COBALT (TOTAL) | 1.7 | J | µg/L | 1.1 | 50 | NA | | No |
| 90MW0066 | 12-Dec-00 | 191 | C200.7 | COPPER (TOTAL) | 5.6 | J | µg/L | 1.6 | 25 | 1300 | MMCL | No |
| 90MW0066 | 12-Dec-00 | 191 | C200.7 | IRON (TOTAL) | **1940** | | µg/L | 35.1 | 100 | 300 | SMCL | Yes |
| 90MW0066 | 12-Dec-00 | 191 | C200.7 | MAGNESIUM (TOTAL) | 2260 | J | µg/L | 59.4 | 5000 | NA | | |
| 90MW0066 | 12-Dec-00 | 191 | C200.7 | MANGANESE (TOTAL) | **179** | | µg/L | 1 | 15 | 50 | SMCL | Yes |
| 90MW0066 | 12-Dec-00 | 191 | C200.7 | NICKEL (TOTAL) | 2.3 | J | µg/L | 1.1 | 40 | 100 | ORSG | No |
| 90MW0066 | 12-Dec-00 | 191 | C200.7 | POTASSIUM (TOTAL) | 1360 | J | µg/L | 21 | 5000 | NA | | |
| 90MW0066 | 12-Dec-00 | 191 | C200.7 | SODIUM (TOTAL) | 9350 | | µg/L | 385 | 5000 | 20000 | ORSG | No |
| 90MW0066A | 16-Mar-00 | 142 | SW6010 | CALCIUM (TOTAL) | 1780 | J | µg/L | 38.5 | 5000 | NA | | |
| 90MW0066A | 16-Mar-00 | 142 | SW6010 | CHROMIUM (TOTAL) | 1.8 | J | µg/L | 1.2 | 10 | 100 | MCL, MMCL | No |
| 90MW0066A | 16-Mar-00 | 142 | SW6010 | IRON (TOTAL) | 142 | | µg/L | 39.4 | 100 | 300 | SMCL | No |
| 90MW0066A | 16-Mar-00 | 142 | SW6010 | MAGNESIUM (TOTAL) | 1150 | J | µg/L | 42.5 | 5000 | NA | | |
| 90MW0066A | 16-Mar-00 | 142 | SW6010 | NICKEL (TOTAL) | 2.7 | J | µg/L | 1.5 | 40 | 100 | ORSG | No |
| 90MW0066A | 16-Mar-00 | 142 | SW6010 | SODIUM (TOTAL) | 11800 | | µg/L | 355 | 5000 | 20000 | ORSG | No |
| 90MW0066A | 16-Mar-00 | 142 | E160.2 | SUSPENDED SOLIDS (RESIDUE, NON-FILTERED) | 12 | | mg/L | 3.6 | 4 | NA | | |
| 90MW0066A | 4-May-00 | 142 | C200.7 | BARIUM (TOTAL) | 2.6 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90MW0066A | 4-May-00 | 142 | C200.7 | CALCIUM (TOTAL) | 1850 | J | µg/L | 46.6 | 5000 | NA | | |
| 90MW0066A | 4-May-00 | 142 | C200.7 | IRON (TOTAL) | 66.1 | J | µg/L | 28.4 | 100 | 300 | SMCL | No |
| 90MW0066A | 4-May-00 | 142 | C200.7 | MAGNESIUM (TOTAL) | 1200 | J | µg/L | 43.7 | 5000 | NA | | |
| 90MW0066A | 4-May-00 | 142 | C200.7 | NICKEL (TOTAL) | 1.7 | J | µg/L | 1.7 | 40 | 100 | ORSG | No |
| 90MW0066A | 4-May-00 | 142 | C200.7 | SODIUM (TOTAL) | 11800 | | µg/L | 435 | 5000 | 20000 | ORSG | No |
| 90MW0066A | 4-May-00 | 142 | C200.7 | ZINC (TOTAL) | 2.9 | J | µg/L | 2.6 | 20 | 5000 | SMCL | No |
| 90MW0066A | 11-Sep-00 | 142 | C200.7 | CALCIUM (TOTAL) | 2410 | J | µg/L | 71.9 | 5000 | NA | | |
| 90MW0066A | 11-Sep-00 | 142 | C200.7 | CHROMIUM (TOTAL) | 1.4 | J | µg/L | 0.7 | 10 | 100 | MCL, MMCL | No |
| 90MW0066A | 11-Sep-00 | 142 | C200.7 | MAGNESIUM (TOTAL) | 1590 | J | µg/L | 72.8 | 5000 | NA | | |
| 90MW0066A | 11-Sep-00 | 142 | C200.7 | SODIUM (TOTAL) | 9460 | | µg/L | 158 | 5000 | 20000 | ORSG | No |
| 90MW0066A | 12-Dec-00 | 142 | C200.7 | BARIUM (TOTAL) | 2.7 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90MW0066A | 12-Dec-00 | 142 | C200.7 | CALCIUM (TOTAL) | 2270 | J | µg/L | 47.4 | 5000 | NA | | |
| 90MW0066A | 12-Dec-00 | 142 | C200.7 | IRON (TOTAL) | 106 | | µg/L | 35.1 | 100 | 300 | SMCL | No |
| 90MW0066A | 12-Dec-00 | 142 | C200.7 | MAGNESIUM (TOTAL) | 1490 | J | µg/L | 59.4 | 5000 | NA | | |
| 90MW0066A | 12-Dec-00 | 142 | C200.7 | NICKEL (TOTAL) | 2.1 | J | µg/L | 1.1 | 40 | 100 | ORSG | No |
| 90MW0066A | 12-Dec-00 | 142 | C200.7 | POTASSIUM (TOTAL) | 681 | J | µg/L | 21 | 5000 | NA | | |
| 90MW0066A | 12-Dec-00 | 142 | C200.7 | SODIUM (TOTAL) | 10600 | | µg/L | 385 | 5000 | 20000 | ORSG | No |
| 90MW0070 | 1-Mar-00 | 135 | MCTNP | NITROGEN | 322 | | µg/L | 8.7 | 30 | NA | | |
| 90MW0070 | 1-Mar-00 | 135 | A4500F | NITROGEN, NITRATE (AS N) | 271 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| 90MW0070 | 1-Mar-00 | 135 | E415.1 | TOTAL ORGANIC CARBON | 0.51 | J | mg/L | 0.43 | 1 | NA | | |
| 90MW0070 | 31-Mar-00 | 135 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 6.6 | | mg/L | 2.2 | 5 | NA | | |
| 90MW0070 | 31-Mar-00 | 135 | E415.1 | DISSOLVED ORGANIC CARBON | 1.1 | | mg/L | 0.43 | 1 | NA | | |

## Appendix E-1
## Comparison of Detected Concentrations in Groundwater at FS-12 to Drinking Water Standards
## January - December 2000

| Location Identification | Date | Depth (feet) | Method | Analyte | Result | Qualifier | Units | DL | RL | Standard (µg/L) | Type | Standard Exceeded ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0070 | 31-Mar-00 | 135 | MCTNP | NITROGEN | 493 | | µg/L | 8.7 | 30 | NA | | |
| 90MW0070 | 31-Mar-00 | 135 | A4500H | NITROGEN, AMMONIA (AS N) | 66.8 | | µg/L | 5 | 10 | NA | | |
| 90MW0070 | 31-Mar-00 | 135 | A4500F | NITROGEN, NITRATE (AS N) | 397 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| 90MW0070 | 31-Mar-00 | 135 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 6.5 | | µg/L | 1.5 | 3 | NA | | |
| 90MW0070 | 31-Mar-00 | 135 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 4.3 | | µg/L | 0.6 | 2 | NA | | |
| 90MW0070 | 31-Mar-00 | 135 | E415.1 | TOTAL ORGANIC CARBON | 0.5 | J | mg/L | 0.43 | 1 | NA | | |
| 90MW0070 | 3-May-00 | 135 | E415.1 | DISSOLVED ORGANIC CARBON | 1 | | mg/L | 0.43 | 1 | NA | | |
| 90MW0070 | 3-May-00 | 135 | MCTNP | NITROGEN | 523 | | µg/L | 8.7 | 30 | NA | | |
| 90MW0070 | 3-May-00 | 135 | A4500H | NITROGEN, AMMONIA (AS N) | 14.6 | | µg/L | 5 | 10 | NA | | |
| 90MW0070 | 3-May-00 | 135 | A4500F | NITROGEN, NITRATE (AS N) | 532 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| 90MW0070 | 3-May-00 | 135 | A4500B | NITROGEN, NITRITE | 0.6 | J | µg/L | 0.2 | 3 | 1000 | MCL, MMCL | No |
| 90MW0070 | 3-May-00 | 135 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 5.7 | | µg/L | 1.5 | 3 | NA | | |
| 90MW0070 | 3-May-00 | 135 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 4.1 | | µg/L | 0.6 | 2 | NA | | |
| 90MW0070 | 30-May-00 | 135 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 5.4 | | mg/L | 2.2 | 5 | NA | | |
| 90MW0070 | 30-May-00 | 135 | E415.1 | DISSOLVED ORGANIC CARBON | 0.79 | J | mg/L | 0.43 | 1 | NA | | |
| 90MW0070 | 30-May-00 | 135 | MCTNP | NITROGEN | 725 | | µg/L | 8.7 | 30 | NA | | |
| 90MW0070 | 30-May-00 | 135 | A4500F | NITROGEN, NITRATE (AS N) | 633 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| 90MW0070 | 30-May-00 | 135 | A4500B | NITROGEN, NITRITE | 0.9 | J | µg/L | 0.2 | 3 | 1000 | MCL, MMCL | No |
| 90MW0070 | 30-May-00 | 135 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 5.3 | | µg/L | 1.5 | 3 | NA | | |
| 90MW0070 | 30-May-00 | 135 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 4.4 | | µg/L | 0.6 | 2 | NA | | |
| 90MW0070 | 30-May-00 | 135 | E415.1 | TOTAL ORGANIC CARBON | 0.62 | J | mg/L | 0.43 | 1 | NA | | |
| 90MW0070 | 11-Sep-00 | 135 | C200.7 | BARIUM (TOTAL) | 9.5 | J | µg/L | 0.3 | 200 | 2000 | MCL, MMCL | No |
| 90MW0070 | 11-Sep-00 | 135 | C200.7 | CALCIUM (TOTAL) | 2290 | J | µg/L | 71.9 | 5000 | NA | | |
| 90MW0070 | 11-Sep-00 | 135 | C200.7 | CHROMIUM (TOTAL) | 1.4 | J | µg/L | 0.7 | 10 | 100 | MCL, MMCL | No |
| 90MW0070 | 11-Sep-00 | 135 | C200.7 | MAGNESIUM (TOTAL) | 1190 | J | µg/L | 72.8 | 5000 | NA | | |
| 90MW0070 | 11-Sep-00 | 135 | C200.7 | MANGANESE (TOTAL) | **54.7** | | µg/L | 1.4 | 15 | 50 | SMCL | Yes |
| 90MW0070 | 11-Sep-00 | 135 | C200.7 | SODIUM (TOTAL) | 6340 | | µg/L | 158 | 5000 | 20000 | ORSG | No |
| 90MW0070 | 12-Dec-00 | 135 | CVOL | CHLOROFORM | 1.3 | | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90MW0076 | 11-Sep-00 | 157.8 | C200.7 | CALCIUM (TOTAL) | 1160 | J | µg/L | 71.9 | 5000 | NA | | |
| 90MW0076 | 11-Sep-00 | 157.8 | C200.7 | CHROMIUM (TOTAL) | 1.8 | J | µg/L | 0.7 | 10 | 100 | MCL, MMCL | No |
| 90MW0076 | 11-Sep-00 | 157.8 | C200.7 | MAGNESIUM (TOTAL) | 836 | J | µg/L | 72.8 | 5000 | NA | | |
| 90MW0076 | 11-Sep-00 | 157.8 | C200.7 | SODIUM (TOTAL) | 5740 | | µg/L | 158 | 5000 | 20000 | ORSG | No |
| 90MW0076 | 13-Dec-00 | 157.8 | CVOL | CHLOROFORM | 0.98 | J | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90MW0079C | 8-Sep-00 | 222.5 | C200.7 | BARIUM (TOTAL) | 8.5 | J | µg/L | 0.3 | 200 | 2000 | MCL, MMCL | No |
| 90MW0079C | 8-Sep-00 | 222.5 | C200.7 | CALCIUM (TOTAL) | 4770 | J | µg/L | 71.9 | 5000 | NA | | |
| 90MW0079C | 8-Sep-00 | 222.5 | C200.7 | IRON (TOTAL) | **876** | | µg/L | 23.3 | 100 | 300 | SMCL | Yes |
| 90MW0079C | 8-Sep-00 | 222.5 | C200.7 | MAGNESIUM (TOTAL) | 2620 | J | µg/L | 72.8 | 5000 | NA | | |
| 90MW0079C | 8-Sep-00 | 222.5 | C200.7 | MANGANESE (TOTAL) | **111** | | µg/L | 1.4 | 15 | 50 | SMCL | Yes |
| 90MW0079C | 8-Sep-00 | 222.5 | C200.7 | POTASSIUM (TOTAL) | 1190 | J | µg/L | 26.4 | 5000 | NA | | |
| 90MW0079C | 8-Sep-00 | 222.5 | C200.7 | SODIUM (TOTAL) | 9690 | | µg/L | 158 | 5000 | 20000 | ORSG | No |
| 90MW0080 | 11-Sep-00 | 141.5 | C200.7 | CALCIUM (TOTAL) | 1590 | J | µg/L | 71.9 | 5000 | NA | | |
| 90MW0080 | 11-Sep-00 | 141.5 | C200.7 | CHROMIUM (TOTAL) | 1.1 | J | µg/L | 0.7 | 10 | 100 | MCL, MMCL | No |
| 90MW0080 | 11-Sep-00 | 141.5 | C200.7 | MAGNESIUM (TOTAL) | 783 | J | µg/L | 72.8 | 5000 | NA | | |
| 90MW0080 | 11-Sep-00 | 141.5 | C200.7 | SODIUM (TOTAL) | 5580 | | µg/L | 158 | 5000 | 20000 | ORSG | No |
| 90MW0081 | 21-Mar-00 | 111.5 | CVOL | CHLOROFORM | 2.5 | | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90MW0081 | 12-Sep-00 | 111.5 | C200.7 | BARIUM (TOTAL) | 5.4 | J | µg/L | 0.3 | 200 | 2000 | MCL, MMCL | No |

## Appendix E-1
## Comparison of Detected Concentrations in Groundwater at FS-12 to Drinking Water Standards
## January - December 2000

| Location Identification | Date | Depth (feet) | Method | Analyte | Result | Qualifier | Units | DL | RL | Standard (µg/L) | Type | Standard Exceeded ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0081 | 12-Sep-00 | 111.5 | C200.7 | CALCIUM (TOTAL) | 2360 | J | µg/L | 71.9 | 5000 | NA | | |
| 90MW0081 | 12-Sep-00 | 111.5 | CVOL | CHLOROFORM | 1.9 | | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90MW0081 | 12-Sep-00 | 111.5 | C200.7 | CHROMIUM (TOTAL) | 0.8 | J | µg/L | 0.7 | 10 | 100 | MCL, MMCL | No |
| 90MW0081 | 12-Sep-00 | 111.5 | C200.7 | COPPER (TOTAL) | 1.4 | J | µg/L | 1.3 | 25 | 1300 | MMCL | No |
| 90MW0081 | 12-Sep-00 | 111.5 | C200.7 | MAGNESIUM (TOTAL) | 1600 | J | µg/L | 72.8 | 5000 | NA | | |
| 90MW0081 | 12-Sep-00 | 111.5 | C200.7 | SODIUM (TOTAL) | 7150 | | µg/L | 158 | 5000 | 20000 | ORSG | No |
| 90MW0081 | 13-Dec-00 | 111.5 | CVOL | CHLOROFORM | 1.7 | | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90MW0083 | 14-Mar-00 | 109.5 | SW6010 | CALCIUM (TOTAL) | 756 | J | µg/L | 38.5 | 5000 | NA | | |
| 90MW0083 | 14-Mar-00 | 109.5 | SW6010 | SODIUM (TOTAL) | 11500 | | µg/L | 355 | 5000 | 20000 | ORSG | No |
| 90MW0083 | 3-May-00 | 109.5 | C200.7 | BARIUM (TOTAL) | 2.5 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90MW0083 | 3-May-00 | 109.5 | C200.7 | CALCIUM (TOTAL) | 692 | J | µg/L | 46.6 | 5000 | NA | | |
| 90MW0083 | 3-May-00 | 109.5 | C200.7 | MAGNESIUM (TOTAL) | 410 | J | µg/L | 43.7 | 5000 | NA | | |
| 90MW0083 | 3-May-00 | 109.5 | C200.7 | SODIUM (TOTAL) | 11200 | | µg/L | 435 | 5000 | 20000 | ORSG | No |
| 90MW0083 | 12-Sep-00 | 109.5 | C200.7 | BARIUM (TOTAL) | 3.2 | J | µg/L | 0.3 | 200 | 2000 | MCL, MMCL | No |
| 90MW0083 | 12-Sep-00 | 109.5 | C200.7 | CALCIUM (TOTAL) | 912 | J | µg/L | 71.9 | 5000 | NA | | |
| 90MW0083 | 12-Sep-00 | 109.5 | C200.7 | CHROMIUM (TOTAL) | 0.9 | J | µg/L | 0.7 | 10 | 100 | MCL, MMCL | No |
| 90MW0083 | 12-Sep-00 | 109.5 | C200.7 | COPPER (TOTAL) | 1.4 | J | µg/L | 1.3 | 25 | 1300 | MMCL | No |
| 90MW0083 | 12-Sep-00 | 109.5 | C200.7 | MAGNESIUM (TOTAL) | 566 | J | µg/L | 72.8 | 5000 | NA | | |
| 90MW0083 | 12-Sep-00 | 109.5 | C200.7 | SODIUM (TOTAL) | 11500 | | µg/L | 158 | 5000 | 20000 | ORSG | No |
| 90MW0083 | 13-Dec-00 | 109.5 | C200.7 | CALCIUM (TOTAL) | 1360 | J | µg/L | 47.4 | 5000 | NA | | |
| 90MW0083 | 13-Dec-00 | 109.5 | C200.7 | CHROMIUM (TOTAL) | 2.4 | J | µg/L | 0.7 | 10 | 100 | MCL, MMCL | No |
| 90MW0083 | 13-Dec-00 | 109.5 | C200.7 | MAGNESIUM (TOTAL) | 848 | J | µg/L | 59.4 | 5000 | NA | | |
| 90MW0083 | 13-Dec-00 | 109.5 | C200.7 | SODIUM (TOTAL) | 11800 | | µg/L | 385 | 5000 | 20000 | ORSG | No |
| 90MW0085A | 17-Mar-00 | 126.6 | SW6010 | CALCIUM (TOTAL) | 2860 | J | µg/L | 38.5 | 5000 | NA | | |
| 90MW0085A | 17-Mar-00 | 126.6 | SW6010 | IRON (TOTAL) | 46 | J | µg/L | 39.4 | 100 | 300 | SMCL | No |
| 90MW0085A | 17-Mar-00 | 126.6 | SW6010 | MAGNESIUM (TOTAL) | 1730 | J | µg/L | 42.5 | 5000 | NA | | |
| 90MW0085A | 17-Mar-00 | 126.6 | SW6010 | POTASSIUM (TOTAL) | 740 | J | µg/L | 25.7 | 5000 | NA | | |
| 90MW0085A | 17-Mar-00 | 126.6 | SW6010 | SODIUM (TOTAL) | 9320 | | µg/L | 355 | 5000 | 20000 | ORSG | No |
| 90MW0085A | 17-Mar-00 | 126.6 | E160.2 | SUSPENDED SOLIDS (RESIDUE, NON-FILTERED) | 13 | | mg/L | 3.6 | 4 | NA | | |
| 90MW0085A | 4-May-00 | 126.6 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 22.4 | | mg/L | 2.2 | 5 | NA | | |
| 90MW0085A | 4-May-00 | 126.6 | C200.7 | BARIUM (TOTAL) | 3.6 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90MW0085A | 4-May-00 | 126.6 | C200.7 | CALCIUM (TOTAL) | 2250 | J | µg/L | 46.6 | 5000 | NA | | |
| 90MW0085A | 4-May-00 | 126.6 | C200.7 | COBALT (TOTAL) | 1.2 | J | µg/L | 0.7 | 50 | NA | | No |
| 90MW0085A | 4-May-00 | 126.6 | C200.7 | IRON (TOTAL) | 77.9 | J | µg/L | 28.4 | 100 | 300 | SMCL | No |
| 90MW0085A | 4-May-00 | 126.6 | C200.7 | MAGNESIUM (TOTAL) | 1300 | J | µg/L | 43.7 | 5000 | NA | | |
| 90MW0085A | 4-May-00 | 126.6 | C200.7 | NICKEL (TOTAL) | 2.8 | J | µg/L | 1.7 | 40 | 100 | ORSG | No |
| 90MW0085A | 4-May-00 | 126.6 | MCTNP | NITROGEN | 50.6 | | µg/L | 8.7 | 30 | NA | | |
| 90MW0085A | 4-May-00 | 126.6 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 57.8 | | µg/L | 1.5 | 3 | NA | | |
| 90MW0085A | 4-May-00 | 126.6 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 53.1 | | µg/L | 0.6 | 2 | NA | | |
| 90MW0085A | 4-May-00 | 126.6 | C200.7 | POTASSIUM (TOTAL) | 722 | J | µg/L | 24.1 | 5000 | NA | | |
| 90MW0085A | 4-May-00 | 126.6 | C200.7 | SODIUM (TOTAL) | 11300 | | µg/L | 435 | 5000 | 20000 | ORSG | No |
| 90MW0085A | 11-Sep-00 | 126.6 | C200.7 | CALCIUM (TOTAL) | 2240 | J | µg/L | 71.9 | 5000 | NA | | |
| 90MW0085A | 11-Sep-00 | 126.6 | C200.7 | CHROMIUM (TOTAL) | 2.1 | J | µg/L | 0.7 | 10 | 100 | MCL, MMCL | No |
| 90MW0085A | 11-Sep-00 | 126.6 | C200.7 | MAGNESIUM (TOTAL) | 1230 | J | µg/L | 72.8 | 5000 | NA | | |
| 90MW0085A | 11-Sep-00 | 126.6 | C200.7 | SODIUM (TOTAL) | 9620 | | µg/L | 158 | 5000 | 20000 | ORSG | No |
| 90MW0085A | 15-Dec-00 | 126.6 | C200.7 | BARIUM (TOTAL) | 3.4 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |

## Appendix E-1
## Comparison of Detected Concentrations in Groundwater at FS-12 to Drinking Water Standards
## January - December 2000

| Location Identification | Date | Depth (feet) | Method | Analyte | Result | Qualifier | Units | DL | RL | Standard (µg/L) | Type | Standard Exceeded ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0085A | 15-Dec-00 | 126.6 | C200.7 | CALCIUM (TOTAL) | 2630 | J | µg/L | 47.4 | 5000 | NA | | |
| 90MW0085A | 15-Dec-00 | 126.6 | C200.7 | IRON (TOTAL) | 42.9 | J | µg/L | 35.1 | 100 | 300 | SMCL | No |
| 90MW0085A | 15-Dec-00 | 126.6 | C200.7 | MAGNESIUM (TOTAL) | 1420 | J | µg/L | 59.4 | 5000 | NA | | |
| 90MW0085A | 15-Dec-00 | 126.6 | C200.7 | NICKEL (TOTAL) | 2 | J | µg/L | 1.1 | 40 | 100 | ORSG | No |
| 90MW0085A | 15-Dec-00 | 126.6 | C200.7 | POTASSIUM (TOTAL) | 794 | J | µg/L | 21 | 5000 | NA | | |
| 90MW0085A | 15-Dec-00 | 126.6 | C200.7 | SODIUM (TOTAL) | 9770 | | µg/L | 385 | 5000 | 20000 | ORSG | No |
| 90MW0085B | 17-Mar-00 | 91.6 | SW6010 | CALCIUM (TOTAL) | 2290 | J | µg/L | 38.5 | 5000 | NA | | |
| 90MW0085B | 17-Mar-00 | 91.6 | SW6010 | CHROMIUM (TOTAL) | 1.4 | J | µg/L | 1.2 | 10 | 100 | MCL, MMCL | No |
| 90MW0085B | 17-Mar-00 | 91.6 | SW6010 | COBALT (TOTAL) | 2.2 | J | µg/L | 1 | 50 | NA | | No |
| 90MW0085B | 17-Mar-00 | 91.6 | SW6010 | IRON (TOTAL) | 43.9 | J | µg/L | 39.4 | 100 | 300 | SMCL | No |
| 90MW0085B | 17-Mar-00 | 91.6 | SW6010 | MAGNESIUM (TOTAL) | 1940 | J | µg/L | 42.5 | 5000 | NA | | |
| 90MW0085B | 17-Mar-00 | 91.6 | SW6010 | POTASSIUM (TOTAL) | 730 | J | µg/L | 25.7 | 5000 | NA | | |
| 90MW0085B | 17-Mar-00 | 91.6 | SW6010 | SODIUM (TOTAL) | 9580 | | µg/L | 355 | 5000 | 20000 | ORSG | No |
| 90MW0085B | 17-Mar-00 | 91.6 | E160.2 | SUSPENDED SOLIDS (RESIDUE, NON-FILTERED) | 4 | | mg/L | 3.6 | 4 | NA | | |
| 90MW0085B | 4-May-00 | 91.6 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 21.7 | | mg/L | 2.2 | 5 | NA | | |
| 90MW0085B | 4-May-00 | 91.6 | C200.7 | ARSENIC (TOTAL) | 4.2 | J | µg/L | 2.5 | 10 | 50 | MCL, MMCL | No |
| 90MW0085B | 4-May-00 | 91.6 | C200.7 | BARIUM (TOTAL) | 4.7 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90MW0085B | 4-May-00 | 91.6 | C200.7 | CALCIUM (TOTAL) | 2400 | J | µg/L | 46.6 | 5000 | NA | | |
| 90MW0085B | 4-May-00 | 91.6 | E415.1 | DISSOLVED ORGANIC CARBON | 1.1 | | mg/L | 0.43 | 1 | NA | | |
| 90MW0085B | 4-May-00 | 91.6 | C200.7 | MAGNESIUM (TOTAL) | 1810 | J | µg/L | 43.7 | 5000 | NA | | |
| 90MW0085B | 4-May-00 | 91.6 | MCTNP | NITROGEN | 70.9 | | µg/L | 8.7 | 30 | NA | | |
| 90MW0085B | 4-May-00 | 91.6 | A4500F | NITROGEN, NITRATE (AS N) | 74.5 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| 90MW0085B | 4-May-00 | 91.6 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 14.2 | | µg/L | 1.5 | 3 | NA | | |
| 90MW0085B | 4-May-00 | 91.6 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 10.8 | | µg/L | 0.6 | 2 | NA | | |
| 90MW0085B | 4-May-00 | 91.6 | C200.7 | POTASSIUM (TOTAL) | 716 | J | µg/L | 24.1 | 5000 | NA | | |
| 90MW0085B | 4-May-00 | 91.6 | C200.7 | SODIUM (TOTAL) | 10600 | | µg/L | 435 | 5000 | 20000 | ORSG | No |
| 90MW0085B | 4-May-00 | 91.6 | E415.1 | TOTAL ORGANIC CARBON | 0.54 | J | mg/L | 0.43 | 1 | NA | | |
| 90MW0085B | 4-May-00 | 91.6 | C200.7 | ZINC (TOTAL) | 4.1 | J | µg/L | 2.6 | 20 | 5000 | SMCL | No |
| 90MW0085B | 11-Sep-00 | 91.6 | C200.7 | CALCIUM (TOTAL) | 2040 | J | µg/L | 71.9 | 5000 | NA | | |
| 90MW0085B | 11-Sep-00 | 91.6 | C200.7 | CHROMIUM (TOTAL) | 2 | J | µg/L | 0.7 | 10 | 100 | MCL, MMCL | No |
| 90MW0085B | 11-Sep-00 | 91.6 | C200.7 | MAGNESIUM (TOTAL) | 1230 | J | µg/L | 72.8 | 5000 | NA | | |
| 90MW0085B | 11-Sep-00 | 91.6 | C200.7 | SODIUM (TOTAL) | 9540 | | µg/L | 158 | 5000 | 20000 | ORSG | No |
| 90MW0085B | 15-Dec-00 | 91.6 | C200.7 | BARIUM (TOTAL) | 5.2 | J | µg/L | 0.2 | 200 | 2000 | MCL, MMCL | No |
| 90MW0085B | 15-Dec-00 | 91.6 | C200.7 | CALCIUM (TOTAL) | 2560 | J | µg/L | 47.4 | 5000 | NA | | |
| 90MW0085B | 15-Dec-00 | 91.6 | C200.7 | COBALT (TOTAL) | 2.7 | J | µg/L | 1.1 | 50 | NA | | No |
| 90MW0085B | 15-Dec-00 | 91.6 | C200.7 | MAGNESIUM (TOTAL) | 1520 | J | µg/L | 59.4 | 5000 | NA | | |
| 90MW0085B | 15-Dec-00 | 91.6 | C200.7 | POTASSIUM (TOTAL) | 834 | J | µg/L | 21 | 5000 | NA | | |
| 90MW0085B | 15-Dec-00 | 91.6 | C200.7 | SODIUM (TOTAL) | 11000 | | µg/L | 385 | 5000 | 20000 | ORSG | No |
| 90MW0089E | 12-Sep-00 | 117.5 | CVOL | CHLOROFORM | 0.58 | J | µg/L | 0.08 | 1 | 5 | ORSG | No |
| 90MW0091C | 15-Mar-00 | 152.5 | E504 | 1,2-DIBROMOETHANE (EDB) | 0.0084 | J | µg/L | 0.0051 | 0.01 | 0.02 | MMCL | No |
| 90MW0100A | 31-Oct-00 | 116.5 | E504 | 1,2-DIBROMOETHANE (EDB) | 0.01 | | µg/L | 0.005 | 0.01 | 0.02 | MMCL | No |
| 90MW0100A | 31-Oct-00 | 136.5 | E504 | 1,2-DIBROMOETHANE (EDB) | 0.015 | | µg/L | 0.005 | 0.01 | 0.02 | MMCL | No |
| 90MW0100A | 31-Oct-00 | 106.5 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.357** | | µg/L | 0.01 | 0.02 | 0.02 | MMCL | Yes |
| 90MW0100A | 31-Oct-00 | 126.5 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.382** | | µg/L | 0.01 | 0.02 | 0.02 | MMCL | Yes |
| 90MW0100A | 31-Oct-00 | 96.5 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.01** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| 90MW0100A | 1-Nov-00 | 156.5 | E504 | 1,2-DIBROMOETHANE (EDB) | 0.006 | J | µg/L | 0.005 | 0.01 | 0.02 | MMCL | No |

**Appendix E-1**
**Comparison of Detected Concentrations in Groundwater at FS-12 to Drinking Water Standards**
**January - December 2000**

| Location Identification | Date | Depth (feet) | Method | Analyte | Result | Qualifier | Units | DL | RL | Standard (µg/L) | Type | Standard Exceeded ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0101A | 7-Nov-00 | 25.5 | SW8260 | TETRACHLOROETHENE(PCE) | 0.465 | J | µg/L | 0.195 | 1 | 5 | MCL, MMCL | No |
| 90MW0101A | 8-Nov-00 | 115.5 | E504 | 1,2-DIBROMOETHANE (EDB) | 0.007 | J | µg/L | 0.005 | 0.01 | 0.02 | MMCL | No |
| 90PLT01001 | 5-Jan-00 | 0 | CVOL | 1,2-DIBROMOETHANE (EDB) | **4.9** | | µg/L | 0.16 | 1 | 0.02 | MMCL | Yes |
| 90PLT01001 | 5-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **5.76** | | µg/L | 0.2 | 0.4 | 0.02 | MMCL | Yes |
| 90PLT01001 | 5-Jan-00 | 0 | CVOL | CHLOROFORM | 0.88 | J | µg/L | 0.11 | 1 | 5 | ORSG | No |
| 90PLT01001 | 5-Jan-00 | 0 | C200.7 | MANGANESE (TOTAL) | 27.2 | | µg/L | 0.18 | 10 | 50 | SMCL | No |
| 90PLT01001 | 5-Jan-00 | 0 | E160.2 | SUSPENDED SOLIDS (RESIDUE, NON-FILTERED) | 6 | | mg/L | 3.6 | 4 | NA | | |
| 90PLT01001 | 5-Jan-00 | 0 | E160.1 | TOTAL DISSOLVED SOLIDS | 26 | | mg/L | 3.9 | 10 | 500000 | SMCL | No |
| 90PLT01001 | 5-Jan-00 | 0 | E415.1 | TOTAL ORGANIC CARBON | 0.38 | J | mg/L | 0.2 | 1 | NA | | |
| 90PLT01001 | 10-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **5.34** | | µg/L | 0.2 | 0.4 | 0.02 | MMCL | Yes |
| 90PLT01001 | 17-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **4.95** | | µg/L | 0.2 | 0.4 | 0.02 | MMCL | Yes |
| 90PLT01001 | 24-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **3.73** | | µg/L | 0.2 | 0.4 | 0.02 | MMCL | Yes |
| 90PLT01001 | 4-Feb-00 | 0 | CVOL | 1,2-DIBROMOETHANE (EDB) | **4.5** | | µg/L | 0.16 | 1 | 0.02 | MMCL | Yes |
| 90PLT01001 | 4-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **5.22** | | µg/L | 0.2 | 0.4 | 0.02 | MMCL | Yes |
| 90PLT01001 | 4-Feb-00 | 0 | CVOL | CHLOROFORM | 0.92 | J | µg/L | 0.11 | 1 | 5 | ORSG | No |
| 90PLT01001 | 4-Feb-00 | 0 | C200.7 | MANGANESE (TOTAL) | 4 | J | µg/L | 0.31 | 10 | 50 | SMCL | No |
| 90PLT01001 | 4-Feb-00 | 0 | E160.2 | SUSPENDED SOLIDS (RESIDUE, NON-FILTERED) | 10 | | mg/L | 3.6 | 4 | NA | | |
| 90PLT01001 | 4-Feb-00 | 0 | E160.1 | TOTAL DISSOLVED SOLIDS | 46 | | mg/L | 3.9 | 10 | 500000 | SMCL | No |
| 90PLT01001 | 4-Feb-00 | 0 | E415.1 | TOTAL ORGANIC CARBON | 0.28 | J | mg/L | 0.2 | 1 | NA | | |
| 90PLT01001 | 9-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **4.7** | | µg/L | 0.2 | 0.4 | 0.02 | MMCL | Yes |
| 90PLT01001 | 15-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **4.81** | | µg/L | 0.2 | 0.4 | 0.02 | MMCL | Yes |
| 90PLT01001 | 24-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **4.75** | | µg/L | 0.2 | 0.4 | 0.02 | MMCL | Yes |
| 90PLT01001 | 29-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **4.36** | | µg/L | 0.2 | 0.4 | 0.02 | MMCL | Yes |
| 90PLT01001 | 6-Mar-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **4.09** | | µg/L | 0.2 | 0.4 | 0.02 | MMCL | Yes |
| 90PLT01001 | 6-Mar-00 | 0 | CVOL | 1,2-DIBROMOETHANE (EDB) | **4.4** | | µg/L | 0.24 | 1 | 0.02 | MMCL | Yes |
| 90PLT01001 | 6-Mar-00 | 0 | CVOL | ACETONE | 2.3 | J | µg/L | 1.09 | 5 | 3000 | ORSG | No |
| 90PLT01001 | 6-Mar-00 | 0 | CVOL | CHLOROFORM | 1.2 | | µg/L | 0.17 | 1 | 5 | ORSG | No |
| 90PLT01001 | 6-Mar-00 | 0 | C200.7 | MANGANESE (TOTAL) | 25.8 | | µg/L | 0.77 | 3 | 50 | SMCL | No |
| 90PLT01001 | 6-Mar-00 | 0 | E160.1 | TOTAL DISSOLVED SOLIDS | 29 | | mg/L | 3.2 | 10 | 500000 | SMCL | No |
| 90PLT01001 | 20-Mar-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **4.19** | | µg/L | 0.2 | 0.4 | 0.02 | MMCL | Yes |
| 90PLT01001 | 31-Oct-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **2.96** | | µg/L | 0.1 | 0.2 | 0.02 | MMCL | Yes |
| 90PLT01001 | 31-Oct-00 | 0 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 10 | | mg/L | 2.2 | 5 | NA | | |
| 90PLT01001 | 31-Oct-00 | 0 | E415.1 | DISSOLVED ORGANIC CARBON | 0.59 | J | mg/L | 0.43 | 1 | NA | | |
| 90PLT01001 | 31-Oct-00 | 0 | C200.7 | MANGANESE (TOTAL) | 17.6 | | µg/L | 0.79 | 15 | 50 | SMCL | No |
| 90PLT01001 | 31-Oct-00 | 0 | MCTNP | NITROGEN | 53 | | µg/L | 8.7 | 30 | NA | | |
| 90PLT01001 | 31-Oct-00 | 0 | A4500F | NITROGEN, NITRATE (AS N) | 50.9 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| 90PLT01001 | 31-Oct-00 | 0 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 30.6 | | µg/L | 1.5 | 3 | NA | | |
| 90PLT01001 | 31-Oct-00 | 0 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 26.4 | | µg/L | 0.6 | 2 | NA | | |
| 90PLT01001 | 31-Oct-00 | 0 | E160.2 | SUSPENDED SOLIDS (RESIDUE, NON-FILTERED) | 4.38 | J | mg/L | 2.47 | 5.2 | NA | | |
| 90PLT01001 | 31-Oct-00 | 0 | E160.1 | TOTAL DISSOLVED SOLIDS | 20 | | mg/L | 2.8 | 10 | 500000 | SMCL | No |
| 90PLT01001 | 27-Nov-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **3.22** | | µg/L | 0.1 | 0.2 | 0.02 | MMCL | Yes |
| 90PLT01001 | 27-Nov-00 | 0 | C200.7 | MANGANESE (TOTAL) | 17.8 | | µg/L | 0.79 | 15 | 50 | SMCL | No |
| 90PLT01001 | 27-Nov-00 | 0 | E160.1 | TOTAL DISSOLVED SOLIDS | 40 | | mg/L | 2.8 | 10 | 500000 | SMCL | No |
| 90PLT01001 | 30-Nov-00 | 0 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 10 | J | mg/L | 2.2 | 5 | NA | | |
| 90PLT01001 | 30-Nov-00 | 0 | E415.1 | DISSOLVED ORGANIC CARBON | 0.498 | J | mg/L | 0.43 | 1 | NA | | |
| 90PLT01001 | 30-Nov-00 | 0 | MCTNP | NITROGEN | 54.4 | | µg/L | 8.7 | 30 | NA | | |

**Appendix E-1**
**Comparison of Detected Concentrations in Groundwater at FS-12 to Drinking Water Standards**
**January - December 2000**

| Location Identification | Date | Depth (feet) | Method | Analyte | Result | Qualifier | Units | DL | RL | Standard (µg/L) | Type | Standard Exceeded ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90PLT01001 | 30-Nov-00 | 0 | A4500F | NITROGEN, NITRATE (AS N) | 63.1 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| 90PLT01001 | 30-Nov-00 | 0 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 32.1 | | µg/L | 1.5 | 3 | NA | | |
| 90PLT01001 | 30-Nov-00 | 0 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 25.9 | | µg/L | 0.6 | 2 | NA | | |
| 90PLT01023 | 24-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.074** | | µg/L | 0.005 | 0.01 | 0.02 | MMCL | Yes |
| 90PLT01023 | 29-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.06** | | µg/L | 0.005 | 0.01 | 0.02 | MMCL | Yes |
| 90PLT01023 | 6-Mar-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.052** | | µg/L | 0.005 | 0.01 | 0.02 | MMCL | Yes |
| 90PLT01023 | 20-Mar-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.042** | | µg/L | 0.005 | 0.01 | 0.02 | MMCL | Yes |
| 90PLT01024 | 5-Jan-00 | 0 | CVOL | 1,2-DIBROMOETHANE (EDB) | **0.84** | J | µg/L | 0.16 | 1 | 0.02 | MMCL | Yes |
| 90PLT01024 | 5-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.921** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| 90PLT01024 | 5-Jan-00 | 0 | CVOL | CHLOROFORM | 0.85 | J | µg/L | 0.11 | 1 | 5 | ORSG | No |
| 90PLT01024 | 10-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.09** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| 90PLT01024 | 17-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.867** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| 90PLT01024 | 24-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.09** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| 90PLT01024 | 4-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.929** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01024 | 4-Feb-00 | 0 | CVOL | 1,2-DIBROMOETHANE (EDB) | **1** | | µg/L | 0.16 | 1 | 0.02 | MMCL | Yes |
| 90PLT01024 | 4-Feb-00 | 0 | CVOL | CHLOROFORM | 0.78 | J | µg/L | 0.11 | 1 | 5 | ORSG | No |
| 90PLT01024 | 9-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.04** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01024 | 15-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.09** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01024 | 24-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.5** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01024 | 29-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.85** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01024 | 6-Mar-00 | 0 | CVOL | 1,2-DIBROMOETHANE (EDB) | **1** | | µg/L | 0.24 | 1 | 0.02 | MMCL | Yes |
| 90PLT01024 | 6-Mar-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.14** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01024 | 6-Mar-00 | 0 | CVOL | CHLOROFORM | 1 | | µg/L | 0.17 | 1 | 5 | ORSG | No |
| 90PLT01024 | 20-Mar-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.34** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01028 | 5-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.943** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| 90PLT01028 | 10-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.12** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| 90PLT01028 | 17-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.915** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| 90PLT01028 | 24-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.08** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| 90PLT01028 | 4-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.2** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01028 | 9-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.13** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01028 | 15-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.3** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01028 | 24-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.58** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01028 | 29-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.8** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01028 | 6-Mar-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.49** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01028 | 20-Mar-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.37** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01029 | 5-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.975** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| 90PLT01029 | 10-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.13** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| 90PLT01029 | 17-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.925** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| 90PLT01029 | 24-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.49** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01029 | 4-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.44** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01029 | 9-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.16** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01029 | 15-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.29** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01029 | 24-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.52** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01029 | 29-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.82** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01029 | 6-Mar-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.37** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01029 | 20-Mar-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.4** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |

## Appendix E-1
## Comparison of Detected Concentrations in Groundwater at FS-12 to Drinking Water Standards
## January - December 2000

| Location Identification | Date | Depth (feet) | Method | Analyte | Result | Qualifier | Units | DL | RL | Standard (µg/L) | Type | Standard Exceeded ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90PLT01030 | 5-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.923** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| 90PLT01030 | 10-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.04** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| 90PLT01030 | 17-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.908** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| 90PLT01030 | 24-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.5** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01030 | 4-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.13** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01030 | 9-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.06** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01030 | 15-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.18** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01030 | 24-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.59** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01030 | 29-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.79** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01030 | 6-Mar-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.33** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01030 | 20-Mar-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.35** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01042 | 5-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.943** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| 90PLT01042 | 5-Jan-00 | 0 | CVOL | 1,2-DIBROMOETHANE (EDB) | **1.1** | | µg/L | 0.16 | 1 | 0.02 | MMCL | Yes |
| 90PLT01042 | 5-Jan-00 | 0 | CVOL | CHLOROFORM | 1.1 | | µg/L | 0.11 | 1 | 5 | ORSG | No |
| 90PLT01042 | 10-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.995** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| 90PLT01042 | 17-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.966** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| 90PLT01042 | 24-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.08** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| 90PLT01042 | 4-Feb-00 | 0 | CVOL | 1,2-DIBROMOETHANE (EDB) | **1.2** | | µg/L | 0.16 | 1 | 0.02 | MMCL | Yes |
| 90PLT01042 | 4-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.34** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01042 | 4-Feb-00 | 0 | CVOL | CHLOROFORM | 0.94 | J | µg/L | 0.11 | 1 | 5 | ORSG | No |
| 90PLT01042 | 9-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.29** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01042 | 15-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.43** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01042 | 24-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.75** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01042 | 29-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **2.07** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01042 | 6-Mar-00 | 0 | CVOL | 1,2-DIBROMOETHANE (EDB) | **1** | | µg/L | 0.24 | 1 | 0.02 | MMCL | Yes |
| 90PLT01042 | 6-Mar-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.53** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01042 | 6-Mar-00 | 0 | CVOL | CHLOROFORM | 1 | | µg/L | 0.17 | 1 | 5 | ORSG | No |
| 90PLT01042 | 20-Mar-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.62** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01046 | 5-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.935** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| 90PLT01046 | 10-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.05** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| 90PLT01046 | 17-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.03** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| 90PLT01046 | 24-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.07** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| 90PLT01046 | 4-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.4** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01046 | 9-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.27** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01046 | 15-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.47** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01046 | 24-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.82** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01046 | 29-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **2.1** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01046 | 6-Mar-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.62** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01046 | 20-Mar-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.75** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01047 | 5-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.02** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| 90PLT01047 | 10-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.07** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| 90PLT01047 | 17-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.05** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| 90PLT01047 | 24-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.13** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| 90PLT01047 | 4-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.31** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01047 | 9-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.31** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01047 | 15-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.45** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |

**Appendix E-1**
**Comparison of Detected Concentrations in Groundwater at FS-12 to Drinking Water Standards**
**January - December 2000**

| Location Identification | Date | Depth (feet) | Method | Analyte | Result | Qualifier | Units | DL | RL | Standard (µg/L) | Type | Standard Exceeded ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90PLT01047 | 24-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.82** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01047 | 29-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.81** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01047 | 6-Mar-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.58** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01047 | 20-Mar-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.82** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01048 | 5-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.03** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| 90PLT01048 | 10-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.07** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| 90PLT01048 | 17-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.09** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| 90PLT01048 | 24-Jan-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.1** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| 90PLT01048 | 4-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.35** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01048 | 9-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.38** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01048 | 15-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.32** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01048 | 24-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.85** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01048 | 29-Feb-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **2** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01048 | 6-Mar-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.6** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01048 | 20-Mar-00 | 0 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.73** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| 90PLT01053 | 5-Jan-00 | 0 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 23.3 | | mg/L | 2.2 | 5 | NA | | |
| 90PLT01053 | 5-Jan-00 | 0 | C200.7 | MANGANESE (TOTAL) | 4.3 | J | µg/L | 0.18 | 10 | 50 | SMCL | No |
| 90PLT01053 | 5-Jan-00 | 0 | MCTNP | NITROGEN | 54.5 | | µg/L | 8.7 | 30 | NA | | |
| 90PLT01053 | 5-Jan-00 | 0 | A4500F | NITROGEN, NITRATE (AS N) | 51 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| 90PLT01053 | 5-Jan-00 | 0 | A4500B | NITROGEN, NITRITE | 1.6 | J | µg/L | 0.2 | 3 | 1000 | MCL, MMCL | No |
| 90PLT01053 | 5-Jan-00 | 0 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 27.8 | | µg/L | 1.5 | 3 | NA | | |
| 90PLT01053 | 5-Jan-00 | 0 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 23.9 | | µg/L | 0.6 | 2 | NA | | |
| 90PLT01053 | 5-Jan-00 | 0 | E160.2 | SUSPENDED SOLIDS (RESIDUE, NON-FILTERED) | 7 | | mg/L | 3.6 | 4 | NA | | |
| 90PLT01053 | 5-Jan-00 | 0 | E160.1 | TOTAL DISSOLVED SOLIDS | 15 | | mg/L | 3.9 | 10 | 500000 | SMCL | No |
| 90PLT01053 | 31-Jan-00 | 0 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 14.8 | | mg/L | 2.2 | 10 | NA | | |
| 90PLT01053 | 31-Jan-00 | 0 | E415.1 | DISSOLVED ORGANIC CARBON | 4.5 | | mg/L | 0.11 | 1 | NA | | |
| 90PLT01053 | 31-Jan-00 | 0 | MCTNP | NITROGEN | 77.1 | | µg/L | 8.7 | 30 | NA | | |
| 90PLT01053 | 31-Jan-00 | 0 | A4500F | NITROGEN, NITRATE (AS N) | 67.5 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| 90PLT01053 | 31-Jan-00 | 0 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 28.5 | | µg/L | 1.5 | 3 | NA | | |
| 90PLT01053 | 31-Jan-00 | 0 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 25.4 | | µg/L | 0.6 | 2 | NA | | |
| 90PLT01053 | 4-Feb-00 | 0 | C200.7 | IRON (TOTAL) | **311** | | µg/L | 17.3 | 100 | 300 | SMCL | Yes |
| 90PLT01053 | 4-Feb-00 | 0 | C200.7 | MANGANESE (TOTAL) | 4 | J | µg/L | 0.31 | 10 | 50 | SMCL | No |
| 90PLT01053 | 4-Feb-00 | 0 | E160.2 | SUSPENDED SOLIDS (RESIDUE, NON-FILTERED) | 10 | | mg/L | 3.6 | 4 | NA | | |
| 90PLT01053 | 4-Feb-00 | 0 | E160.1 | TOTAL DISSOLVED SOLIDS | 40 | | mg/L | 3.9 | 10 | 500000 | SMCL | No |
| 90PLT01053 | 29-Feb-00 | 0 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 18.5 | | mg/L | 2.2 | 5 | NA | | |
| 90PLT01053 | 29-Feb-00 | 0 | MCTNP | NITROGEN | 71.6 | | µg/L | 8.7 | 30 | NA | | |
| 90PLT01053 | 29-Feb-00 | 0 | A4500F | NITROGEN, NITRATE (AS N) | 70.8 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| 90PLT01053 | 29-Feb-00 | 0 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 28.4 | | µg/L | 1.5 | 3 | NA | | |
| 90PLT01053 | 29-Feb-00 | 0 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 25.2 | | µg/L | 0.6 | 2 | NA | | |
| 90PLT01053 | 6-Mar-00 | 0 | C200.7 | MANGANESE (TOTAL) | 3.3 | | µg/L | 0.77 | 3 | 50 | SMCL | No |
| 90PLT01053 | 6-Mar-00 | 0 | E160.1 | TOTAL DISSOLVED SOLIDS | 30 | | mg/L | 3.2 | 10 | 500000 | SMCL | No |
| 90PLT01053 | 31-Mar-00 | 0 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 17.6 | | mg/L | 2.2 | 5 | NA | | |
| 90PLT01053 | 31-Mar-00 | 0 | E415.1 | DISSOLVED ORGANIC CARBON | 1.4 | | mg/L | 0.43 | 1 | NA | | |
| 90PLT01053 | 31-Mar-00 | 0 | MCTNP | NITROGEN | 231 | | µg/L | 8.7 | 30 | NA | | |
| 90PLT01053 | 31-Mar-00 | 0 | A4500H | NITROGEN, AMMONIA (AS N) | 239 | | µg/L | 5 | 10 | NA | | |
| 90PLT01053 | 31-Mar-00 | 0 | A4500F | NITROGEN, NITRATE (AS N) | 77.7 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |

**Appendix E-1**
**Comparison of Detected Concentrations in Groundwater at FS-12 to Drinking Water Standards**
**January - December 2000**

| Location Identification | Date | Depth (feet) | Method | Analyte | Result | Qualifier | Units | DL | RL | Standard (µg/L) | Type | Standard Exceeded ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90PLT01053 | 31-Mar-00 | 0 | A4500B | NITROGEN, NITRITE | 1.9 | J | µg/L | 0.2 | 3 | 1000 | MCL, MMCL | No |
| 90PLT01053 | 31-Mar-00 | 0 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 31.7 | | µg/L | 1.5 | 3 | NA | | |
| 90PLT01053 | 31-Mar-00 | 0 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 26.1 | | µg/L | 0.6 | 2 | NA | | |
| 90PLT01053 | 31-Mar-00 | 0 | E415.1 | TOTAL ORGANIC CARBON | 0.55 | J | mg/L | 0.43 | 1 | NA | | |
| 90PLT01053 | 3-Apr-00 | 0 | C200.7 | MANGANESE (TOTAL) | 1.8 | J | µg/L | 1.34 | 15 | 50 | SMCL | No |
| 90PLT01053 | 26-Apr-00 | 0 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 26.8 | | mg/L | 2.2 | 5 | NA | | |
| 90PLT01053 | 26-Apr-00 | 0 | E415.1 | DISSOLVED ORGANIC CARBON | 0.44 | J | mg/L | 0.43 | 1 | NA | | |
| 90PLT01053 | 26-Apr-00 | 0 | MCTNP | NITROGEN | 34.6 | | µg/L | 8.7 | 30 | NA | | |
| 90PLT01053 | 26-Apr-00 | 0 | A4500F | NITROGEN, NITRATE (AS N) | 33.3 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| 90PLT01053 | 26-Apr-00 | 0 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 26.7 | | µg/L | 1.5 | 3 | NA | | |
| 90PLT01053 | 26-Apr-00 | 0 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 23.2 | | µg/L | 0.6 | 2 | NA | | |
| 90PLT01053 | 1-May-00 | 0 | C200.7 | MANGANESE (TOTAL) | 2.3 | J | µg/L | 1.34 | 15 | 50 | SMCL | No |
| 90PLT01053 | 1-May-00 | 0 | E160.1 | TOTAL DISSOLVED SOLIDS | 40 | | mg/L | 2.8 | 10 | 500000 | SMCL | No |
| 90PLT01053 | 31-May-00 | 0 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 13.6 | | mg/L | 2.2 | 5 | NA | | |
| 90PLT01053 | 31-May-00 | 0 | MCTNP | NITROGEN | 79.1 | | µg/L | 8.7 | 30 | NA | | |
| 90PLT01053 | 31-May-00 | 0 | A4500H | NITROGEN, AMMONIA (AS N) | 7.9 | J | µg/L | 5 | 10 | NA | | |
| 90PLT01053 | 31-May-00 | 0 | A4500F | NITROGEN, NITRATE (AS N) | 54.9 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| 90PLT01053 | 31-May-00 | 0 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 28.5 | | µg/L | 1.5 | 3 | NA | | |
| 90PLT01053 | 31-May-00 | 0 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 25.2 | | µg/L | 0.6 | 2 | NA | | |
| 90PLT01053 | 1-Jun-00 | 0 | C200.7 | MANGANESE (TOTAL) | 3.7 | J | µg/L | 1.34 | 15 | 50 | SMCL | No |
| 90PLT01053 | 1-Jun-00 | 0 | E160.1 | TOTAL DISSOLVED SOLIDS | 50 | | mg/L | 2.8 | 10 | 500000 | SMCL | No |
| 90PLT01053 | 1-Jun-00 | 0 | E415.1 | TOTAL ORGANIC CARBON | 1 | | mg/L | 0.34 | 1 | NA | | |
| 90PLT01053 | 30-Jun-00 | 0 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 15 | | mg/L | 2.2 | 5 | NA | | |
| 90PLT01053 | 30-Jun-00 | 0 | MCTNP | NITROGEN | 63.3 | | µg/L | 8.7 | 30 | NA | | |
| 90PLT01053 | 30-Jun-00 | 0 | A4500F | NITROGEN, NITRATE (AS N) | 64.6 | J | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| 90PLT01053 | 30-Jun-00 | 0 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 30.2 | | µg/L | 1.5 | 3 | NA | | |
| 90PLT01053 | 30-Jun-00 | 0 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 24.3 | | µg/L | 0.6 | 2 | NA | | |
| 90PLT01053 | 30-Jun-00 | 0 | E415.1 | TOTAL ORGANIC CARBON | 0.67 | J | mg/L | 0.43 | 1 | NA | | |
| 90PLT01053 | 25-Jul-00 | 0 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 17.3 | | mg/L | 2.2 | 5 | NA | | |
| 90PLT01053 | 25-Jul-00 | 0 | E415.1 | DISSOLVED ORGANIC CARBON | 0.98 | J | mg/L | 0.43 | 1 | NA | | |
| 90PLT01053 | 25-Jul-00 | 0 | MCTNP | NITROGEN | 79.8 | | µg/L | 8.7 | 30 | NA | | |
| 90PLT01053 | 25-Jul-00 | 0 | A4500H | NITROGEN, AMMONIA (AS N) | 6 | J | µg/L | 5 | 10 | NA | | |
| 90PLT01053 | 25-Jul-00 | 0 | A4500F | NITROGEN, NITRATE (AS N) | 41.3 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| 90PLT01053 | 25-Jul-00 | 0 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 30.7 | | µg/L | 1.5 | 3 | NA | | |
| 90PLT01053 | 25-Jul-00 | 0 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 27.6 | | µg/L | 0.6 | 2 | NA | | |
| 90PLT01053 | 25-Jul-00 | 0 | E415.1 | TOTAL ORGANIC CARBON | 0.56 | J | mg/L | 0.43 | 1 | NA | | |
| 90PLT01053 | 31-Jul-00 | 0 | E160.1 | TOTAL DISSOLVED SOLIDS | 60 | | mg/L | 2.8 | 10 | 500000 | SMCL | No |
| 90PLT01053 | 30-Aug-00 | 0 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 18.4 | | mg/L | 2.2 | 5 | NA | | |
| 90PLT01053 | 30-Aug-00 | 0 | E415.1 | DISSOLVED ORGANIC CARBON | 0.75 | J | mg/L | 0.43 | 1 | NA | | |
| 90PLT01053 | 30-Aug-00 | 0 | MCTNP | NITROGEN | 48.1 | | µg/L | 8.7 | 30 | NA | | |
| 90PLT01053 | 30-Aug-00 | 0 | A4500H | NITROGEN, AMMONIA (AS N) | 5.7 | J | µg/L | 5 | 10 | NA | | |
| 90PLT01053 | 30-Aug-00 | 0 | A4500F | NITROGEN, NITRATE (AS N) | 13.6 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| 90PLT01053 | 30-Aug-00 | 0 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 17.3 | | µg/L | 1.5 | 3 | NA | | |
| 90PLT01053 | 30-Aug-00 | 0 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 18.5 | | µg/L | 0.6 | 2 | NA | | |
| 90PLT01053 | 30-Aug-00 | 0 | E415.1 | TOTAL ORGANIC CARBON | 0.75 | J | mg/L | 0.43 | 1 | NA | | |
| 90PLT01053 | 5-Sep-00 | 0 | C200.7 | MANGANESE (TOTAL) | 2.1 | J | µg/L | 1.34 | 15 | 50 | SMCL | No |

**Appendix E-1**
**Comparison of Detected Concentrations in Groundwater at FS-12 to Drinking Water Standards**
**January - December 2000**

| Location Identification | Date | Depth (feet) | Method | Analyte | Result | Qualifier | Units | DL | RL | Standard (µg/L) | Type | Standard Exceeded ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90PLT01053 | 5-Sep-00 | 0 | E160.1 | TOTAL DISSOLVED SOLIDS | 60 | | mg/L | 2.8 | 10 | 500000 | SMCL | No |
| 90PLT01053 | 26-Sep-00 | 0 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 16.9 | | mg/L | 2.2 | 5 | NA | | |
| 90PLT01053 | 26-Sep-00 | 0 | MCTNP | NITROGEN | 89.1 | | µg/L | 8.7 | 30 | NA | | |
| 90PLT01053 | 26-Sep-00 | 0 | A4500F | NITROGEN, NITRATE (AS N) | 36.3 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| 90PLT01053 | 26-Sep-00 | 0 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 23.5 | | µg/L | 1.5 | 3 | NA | | |
| 90PLT01053 | 26-Sep-00 | 0 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 20.8 | | µg/L | 0.6 | 2 | NA | | |
| 90PLT01053 | 28-Sep-00 | 0 | C200.7 | MANGANESE (TOTAL) | 3.4 | J | µg/L | 0.79 | 15 | 50 | SMCL | No |
| 90PLT01053 | 28-Sep-00 | 0 | E160.1 | TOTAL DISSOLVED SOLIDS | 40 | | mg/L | 2.8 | 10 | 500000 | SMCL | No |
| 90PLT01053 | 31-Oct-00 | 0 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 17.6 | | mg/L | 2.2 | 5 | NA | | |
| 90PLT01053 | 31-Oct-00 | 0 | C200.7 | MANGANESE (TOTAL) | 3.3 | J | µg/L | 0.79 | 15 | 50 | SMCL | No |
| 90PLT01053 | 31-Oct-00 | 0 | MCTNP | NITROGEN | 60.8 | | µg/L | 8.7 | 30 | NA | | |
| 90PLT01053 | 31-Oct-00 | 0 | A4500F | NITROGEN, NITRATE (AS N) | 65.4 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| 90PLT01053 | 31-Oct-00 | 0 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 27.9 | | µg/L | 1.5 | 3 | NA | | |
| 90PLT01053 | 31-Oct-00 | 0 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 24.8 | | µg/L | 0.6 | 2 | NA | | |
| 90PLT01053 | 31-Oct-00 | 0 | E160.1 | TOTAL DISSOLVED SOLIDS | 30 | | mg/L | 2.8 | 10 | 500000 | SMCL | No |
| 90PLT01053 | 27-Nov-00 | 0 | E160.1 | TOTAL DISSOLVED SOLIDS | 40 | | mg/L | 2.8 | 10 | 500000 | SMCL | No |
| 90PLT01053 | 30-Nov-00 | 0 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 14.7 | J | mg/L | 2.2 | 5 | NA | | |
| 90PLT01053 | 30-Nov-00 | 0 | MCTNP | NITROGEN | 62.3 | | µg/L | 8.7 | 30 | NA | | |
| 90PLT01053 | 30-Nov-00 | 0 | A4500F | NITROGEN, NITRATE (AS N) | 68.7 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| 90PLT01053 | 30-Nov-00 | 0 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 30.5 | | µg/L | 1.5 | 3 | NA | | |
| 90PLT01053 | 30-Nov-00 | 0 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 26.5 | | µg/L | 0.6 | 2 | NA | | |
| 90PZ0205 | 5-Jan-00 | 8.5 | E415.1 | DISSOLVED ORGANIC CARBON | 1.7 | | mg/L | 0.11 | 1 | NA | | |
| 90PZ0205 | 5-Jan-00 | 8.5 | MCTNP | NITROGEN | 249 | | µg/L | 8.7 | 30 | NA | | |
| 90PZ0205 | 5-Jan-00 | 8.5 | A4500F | NITROGEN, NITRATE (AS N) | 154 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| 90PZ0205 | 5-Jan-00 | 8.5 | A4500B | NITROGEN, NITRITE | 1 | J | µg/L | 0.2 | 3 | 1000 | MCL, MMCL | No |
| 90PZ0205 | 5-Jan-00 | 8.5 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 7.4 | | µg/L | 1.5 | 3 | NA | | |
| 90PZ0205 | 5-Jan-00 | 8.5 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 3.3 | | µg/L | 0.6 | 2 | NA | | |
| 90PZ0205 | 5-Jan-00 | 8.5 | E415.1 | TOTAL ORGANIC CARBON | 1.8 | | mg/L | 0.11 | 1 | NA | | |
| 90PZ0205 | 31-Jan-00 | 8.5 | MCTNP | NITROGEN | 182 | | µg/L | 8.7 | 30 | NA | | |
| 90PZ0205 | 31-Jan-00 | 8.5 | A4500H | NITROGEN, AMMONIA (AS N) | 28.6 | | µg/L | 5 | 10 | NA | | |
| 90PZ0205 | 31-Jan-00 | 8.5 | A4500F | NITROGEN, NITRATE (AS N) | 118 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| 90PZ0205 | 31-Jan-00 | 8.5 | A4500B | NITROGEN, NITRITE | 0.2 | J | µg/L | 0.2 | 3 | 1000 | MCL, MMCL | No |
| 90PZ0205 | 31-Jan-00 | 8.5 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 9.5 | | µg/L | 1.5 | 3 | NA | | |
| 90PZ0205 | 31-Jan-00 | 8.5 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 3.1 | | µg/L | 0.6 | 2 | NA | | |
| 90PZ0205 | 1-Mar-00 | 8.5 | E415.1 | DISSOLVED ORGANIC CARBON | 1.7 | | mg/L | 0.43 | 1 | NA | | |
| 90PZ0205 | 1-Mar-00 | 8.5 | MCTNP | NITROGEN | 150 | | µg/L | 8.7 | 30 | NA | | |
| 90PZ0205 | 1-Mar-00 | 8.5 | A4500F | NITROGEN, NITRATE (AS N) | 79.3 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| 90PZ0205 | 1-Mar-00 | 8.5 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 5.8 | | µg/L | 1.5 | 3 | NA | | |
| 90PZ0205 | 1-Mar-00 | 8.5 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 2.2 | | µg/L | 0.6 | 2 | NA | | |
| 90PZ0205 | 1-Mar-00 | 8.5 | E415.1 | TOTAL ORGANIC CARBON | 1.8 | | mg/L | 0.43 | 1 | NA | | |
| 96SV0004 | 20-Mar-00 | 84.5 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.28** | | µg/L | 0.0051 | 0.01 | 0.02 | MMCL | Yes |
| 96SV0004 | 20-Mar-00 | 84.5 | CVOL | ETHYLBENZENE | 500 | J | µg/L | 75 | 750 | 700 | MCL, MMCL | No |
| 96SV0004 | 20-Mar-00 | 84.5 | CVOL | TOLUENE | **12000** | | µg/L | 68 | 750 | 1000 | MMCL | Yes |
| 96SV0004 | 20-Mar-00 | 84.5 | CVOL | XYLENES, TOTAL | 1900 | | µg/L | 82 | 750 | 10000 | MMCL | No |
| 96SV0004 | 13-Sep-00 | 84.5 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.2** | | µg/L | 0.0051 | 0.01 | 0.02 | MMCL | Yes |
| 96SV0004 | 13-Sep-00 | 84.5 | CVOL | ETHYLBENZENE | 500 | J | µg/L | 100 | 1000 | 700 | MCL, MMCL | No |

**Appendix E-1**
**Comparison of Detected Concentrations in Groundwater at FS-12 to Drinking Water Standards**
**January - December 2000**

| Location Identification | Date | Depth (feet) | Method | Analyte | Result | Qualifier | Units | DL | RL | Standard (µg/L) | Type | Standard Exceeded ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 96SV0004 | 13-Sep-00 | 84.5 | CVOL | TOLUENE | **14000** | | mg/L | 90 | 1000 | 1000 | MMCL | Yes |
| 96SV0004 | 13-Sep-00 | 84.5 | CVOL | XYLENES, TOTAL | 2200 | | µg/L | 110 | 1000 | 10000 | MMCL | No |
| 96SV0006 | 20-Mar-00 | 90.2 | CVOL | ETHYLBENZENE | 350 | | µg/L | 2.5 | 25 | 700 | MCL, MMCL | No |
| 96SV0006 | 20-Mar-00 | 90.2 | CVOL | TOLUENE | 490 | | µg/L | 2.2 | 25 | 1000 | MMCL | No |
| 96SV0006 | 20-Mar-00 | 90.2 | CVOL | XYLENES, TOTAL | 430 | | µg/L | 2.8 | 25 | 10000 | MMCL | No |
| 96SV0006 | 13-Sep-00 | 90.2 | CVOL | ETHYLBENZENE | 500 | | µg/L | 5 | 50 | 700 | MCL, MMCL | No |
| 96SV0006 | 13-Sep-00 | 90.2 | CVOL | TOLUENE | 810 | | mg/L | 4.5 | 50 | 1000 | MMCL | No |
| 96SV0006 | 13-Sep-00 | 90.2 | CVOL | XYLENES, TOTAL | 730 | | µg/L | 5.5 | 50 | 10000 | MMCL | No |
| 96SV0013 | 23-Mar-00 | 90 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.23** | | µg/L | 0.0051 | 0.01 | 0.02 | MMCL | Yes |
| 96SV0013 | 23-Mar-00 | 90 | CVOL | ETHYLBENZENE | 390 | | µg/L | 20 | 200 | 700 | MCL, MMCL | No |
| 96SV0013 | 23-Mar-00 | 90 | CVOL | TOLUENE | **2800** | | µg/L | 18 | 200 | 1000 | MMCL | Yes |
| 96SV0013 | 23-Mar-00 | 90 | CVOL | XYLENES, TOTAL | 2000 | | µg/L | 22 | 200 | 10000 | MMCL | No |
| 96SV0013 | 14-Sep-00 | 90 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.14** | | µg/L | 0.0051 | 0.01 | 0.02 | MMCL | Yes |
| 96SV0013 | 14-Sep-00 | 90 | CVOL | BENZENE | **25** | J | µg/L | 8.2 | 75 | 5 | MCL, MMCL | Yes |
| 96SV0013 | 14-Sep-00 | 90 | CVOL | ETHYLBENZENE | 370 | | µg/L | 7.5 | 75 | 700 | MCL, MMCL | No |
| 96SV0013 | 14-Sep-00 | 90 | CVOL | TOLUENE | **1900** | | mg/L | 6.8 | 75 | 1000 | MMCL | Yes |
| 96SV0013 | 14-Sep-00 | 90 | CVOL | XYLENES, TOTAL | 1600 | | µg/L | 8.2 | 75 | 10000 | MMCL | No |
| ECMWPTP01D | 9-May-00 | 87.6 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 13 | | mg/L | 2.2 | 5 | NA | | |
| ECMWPTP01D | 9-May-00 | 87.6 | E415.1 | DISSOLVED ORGANIC CARBON | 0.76 | J | mg/L | 0.43 | 1 | NA | | |
| ECMWPTP01D | 9-May-00 | 87.6 | MCTNP | NITROGEN | 1190 | | µg/L | 17.4 | 60 | NA | | |
| ECMWPTP01D | 9-May-00 | 87.6 | A4500F | NITROGEN, NITRATE (AS N) | 1040 | | µg/L | 1.8 | 6 | 10000 | MCL, MMCL | No |
| ECMWPTP01D | 9-May-00 | 87.6 | A4500B | NITROGEN, NITRITE | 0.3 | J | µg/L | 0.2 | 3 | 1000 | MCL, MMCL | No |
| ECMWPTP01D | 9-May-00 | 87.6 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 28.4 | | µg/L | 1.5 | 3 | NA | | |
| ECMWPTP01D | 9-May-00 | 87.6 | E415.1 | TOTAL ORGANIC CARBON | 0.6 | J | mg/L | 0.43 | 1 | NA | | |
| ECMWPTP01D | 20-Sep-00 | 87.6 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 13.6 | | mg/L | 2.2 | 5 | NA | | |
| ECMWPTP01D | 20-Sep-00 | 87.6 | E415.1 | DISSOLVED ORGANIC CARBON | 0.53 | J | mg/L | 0.43 | 1 | NA | | |
| ECMWPTP01D | 20-Sep-00 | 87.6 | MCTNP | NITROGEN | 695 | | µg/L | 8.7 | 30 | NA | | |
| ECMWPTP01D | 20-Sep-00 | 87.6 | A4500H | NITROGEN, AMMONIA (AS N) | 8 | J | µg/L | 5 | 10 | NA | | |
| ECMWPTP01D | 20-Sep-00 | 87.6 | A4500F | NITROGEN, NITRATE (AS N) | 656 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| ECMWPTP01D | 20-Sep-00 | 87.6 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 19.4 | | µg/L | 1.5 | 3 | NA | | |
| ECMWPTP01D | 20-Sep-00 | 87.6 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 16.8 | | µg/L | 0.6 | 2 | NA | | |
| ECMWPTP01D | 10-Nov-00 | 87.6 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 12 | | mg/L | 2.2 | 5 | NA | | |
| ECMWPTP01D | 10-Nov-00 | 87.6 | E415.1 | DISSOLVED ORGANIC CARBON | 0.74 | J | mg/L | 0.43 | 1 | NA | | |
| ECMWPTP01D | 10-Nov-00 | 87.6 | MCTNP | NITROGEN | 738 | | µg/L | 8.7 | 30 | NA | | |
| ECMWPTP01D | 10-Nov-00 | 87.6 | A4500F | NITROGEN, NITRATE (AS N) | 742 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| ECMWPTP01D | 10-Nov-00 | 87.6 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 21 | | µg/L | 1.5 | 3 | NA | | |
| ECMWPTP01D | 10-Nov-00 | 87.6 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 16.5 | | µg/L | 0.6 | 2 | NA | | |
| ECMWPTP01S | 9-May-00 | 7.5 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 54.7 | | mg/L | 2.2 | 5 | NA | | |
| ECMWPTP01S | 9-May-00 | 7.5 | E415.1 | DISSOLVED ORGANIC CARBON | 2.1 | | mg/L | 0.43 | 1 | NA | | |
| ECMWPTP01S | 9-May-00 | 7.5 | MCTNP | NITROGEN | 826 | | µg/L | 8.7 | 30 | NA | | |
| ECMWPTP01S | 9-May-00 | 7.5 | A4500F | NITROGEN, NITRATE (AS N) | 660 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| ECMWPTP01S | 9-May-00 | 7.5 | A4500B | NITROGEN, NITRITE | 9.4 | | µg/L | 0.2 | 3 | 1000 | MCL, MMCL | No |
| ECMWPTP01S | 9-May-00 | 7.5 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 12.8 | | µg/L | 1.5 | 3 | NA | | |
| ECMWPTP01S | 9-May-00 | 7.5 | E415.1 | TOTAL ORGANIC CARBON | 1.8 | | mg/L | 0.43 | 1 | NA | | |
| ECMWPTP01S | 20-Sep-00 | 7.5 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 44.7 | | mg/L | 2.2 | 5 | NA | | |
| ECMWPTP01S | 20-Sep-00 | 7.5 | E415.1 | DISSOLVED ORGANIC CARBON | 1.7 | | mg/L | 0.43 | 1 | NA | | |

**Appendix E-1**
**Comparison of Detected Concentrations in Groundwater at FS-12 to Drinking Water Standards**
**January - December 2000**

| Location Identification | Date | Depth (feet) | Method | Analyte | Result | Qualifier | Units | DL | RL | Standard (µg/L) | Type | Standard Exceeded ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ECMWPTP01S | 20-Sep-00 | 7.5 | MCTNP | NITROGEN | 135 | | µg/L | 8.7 | 30 | NA | | |
| ECMWPTP01S | 20-Sep-00 | 7.5 | A4500H | NITROGEN, AMMONIA (AS N) | 10.5 | | µg/L | 5 | 10 | NA | | |
| ECMWPTP01S | 20-Sep-00 | 7.5 | A4500F | NITROGEN, NITRATE (AS N) | 80 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| ECMWPTP01S | 20-Sep-00 | 7.5 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 39.5 | | µg/L | 1.5 | 3 | NA | | |
| ECMWPTP01S | 20-Sep-00 | 7.5 | E415.1 | TOTAL ORGANIC CARBON | 1.2 | J | mg/L | 0.43 | 1 | NA | | |
| ECMWPTP01S | 10-Nov-00 | 7.5 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 44.3 | | mg/L | 2.2 | 5 | NA | | |
| ECMWPTP01S | 10-Nov-00 | 7.5 | E415.1 | DISSOLVED ORGANIC CARBON | 1.9 | | mg/L | 0.43 | 1 | NA | | |
| ECMWPTP01S | 10-Nov-00 | 7.5 | MCTNP | NITROGEN | 316 | | µg/L | 8.7 | 30 | NA | | |
| ECMWPTP01S | 10-Nov-00 | 7.5 | A4500B | NITROGEN, NITRITE | 5.3 | | µg/L | 0.2 | 3 | 1000 | MCL, MMCL | No |
| ECMWPTP01S | 10-Nov-00 | 7.5 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 4 | | µg/L | 1.5 | 3 | NA | | |
| ECMWPTP01S | 10-Nov-00 | 7.5 | E415.1 | TOTAL ORGANIC CARBON | 1.3 | | mg/L | 0.43 | 1 | NA | | |
| ECMWSNP02D | 14-Mar-00 | 82.4 | E504 | 1,2-DIBROMOETHANE (EDB) | **1.15** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| ECMWSNP02D | 6-Apr-00 | 82.4 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.521** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| ECMWSNP02D | 2-May-00 | 82.4 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.112** | | µg/L | 0.005 | 0.01 | 0.02 | MMCL | Yes |
| ECMWSNP02D | 2-May-00 | 82.4 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 17.8 | | mg/L | 2.2 | 5 | NA | | |
| ECMWSNP02D | 2-May-00 | 82.4 | E415.1 | DISSOLVED ORGANIC CARBON | 0.58 | J | mg/L | 0.43 | 1 | NA | | |
| ECMWSNP02D | 2-May-00 | 82.4 | MCTNP | NITROGEN | 27.9 | J | µg/L | 8.7 | 30 | NA | | |
| ECMWSNP02D | 2-May-00 | 82.4 | A4500F | NITROGEN, NITRATE (AS N) | 39.7 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| ECMWSNP02D | 2-May-00 | 82.4 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 46.6 | | µg/L | 1.5 | 3 | NA | | |
| ECMWSNP02D | 2-May-00 | 82.4 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 41.6 | | µg/L | 0.6 | 2 | NA | | |
| ECMWSNP02D | 31-May-00 | 82.4 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.056** | | µg/L | 0.005 | 0.01 | 0.02 | MMCL | Yes |
| ECMWSNP02D | 7-Sep-00 | 82.4 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.059** | | µg/L | 0.005 | 0.01 | 0.02 | MMCL | Yes |
| ECMWSNP02D | 1-Nov-00 | 82.4 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.834** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| ECMWSNP02D | 15-Dec-00 | 82.4 | CVOL | 1,2-DIBROMOETHANE (EDB) | **0.24** | J | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| ECMWSNP02D | 15-Dec-00 | 82.4 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.25** | J | µg/L | 0.0048 | 0.01 | 0.02 | MMCL | Yes |
| ECMWSNP02D | 15-Dec-00 | 82.4 | CVOL | CHLOROFORM | 1.2 | | µg/L | 0.08 | 1 | 5 | ORSG | No |
| ECMWSNP02S | 14-Mar-00 | 47.5 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.404** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| ECMWSNP02S | 6-Apr-00 | 47.5 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.962** | | µg/L | 0.05 | 0.1 | 0.02 | MMCL | Yes |
| ECMWSNP02S | 2-May-00 | 47.5 | CVOL | 1,2-DIBROMOETHANE (EDB) | **0.8** | J | µg/L | 0.1 | 1 | 0.02 | MMCL | Yes |
| ECMWSNP02S | 2-May-00 | 47.5 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.938** | | µg/L | 0.025 | 0.05 | 0.02 | MMCL | Yes |
| ECMWSNP02S | 2-May-00 | 47.5 | E415.1 | DISSOLVED ORGANIC CARBON | 0.99 | J | mg/L | 0.43 | 1 | NA | | |
| ECMWSNP02S | 2-May-00 | 47.5 | MCTNP | NITROGEN | 13.9 | J | µg/L | 8.7 | 30 | NA | | |
| ECMWSNP02S | 2-May-00 | 47.5 | A4500F | NITROGEN, NITRATE (AS N) | 5 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| ECMWSNP02S | 2-May-00 | 47.5 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 28 | | µg/L | 1.5 | 3 | NA | | |
| ECMWSNP02S | 2-May-00 | 47.5 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 24.3 | | µg/L | 0.6 | 2 | NA | | |
| ECMWSNP02S | 31-May-00 | 47.5 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.139** | | µg/L | 0.005 | 0.01 | 0.02 | MMCL | Yes |
| ECMWSNP02S | 7-Sep-00 | 47.5 | E504 | 1,2-DIBROMOETHANE (EDB) | **0.109** | | µg/L | 0.005 | 0.01 | 0.02 | MMCL | Yes |
| ECMWSNP02S | 7-Sep-00 | 47.5 | CVOL | CHLOROFORM | 0.89 | J | µg/L | 0.08 | 1 | 5 | ORSG | No |
| ECMWSNP03D | 3-May-00 | 82.4 | E415.1 | DISSOLVED ORGANIC CARBON | 0.85 | J | mg/L | 0.43 | 1 | NA | | |
| ECMWSNP03D | 3-May-00 | 82.4 | MCTNP | NITROGEN | 44.7 | | µg/L | 8.7 | 30 | NA | | |
| ECMWSNP03D | 3-May-00 | 82.4 | A4500H | NITROGEN, AMMONIA (AS N) | 11.1 | | µg/L | 5 | 10 | NA | | |
| ECMWSNP03D | 3-May-00 | 82.4 | A4500F | NITROGEN, NITRATE (AS N) | 32.2 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| ECMWSNP03D | 3-May-00 | 82.4 | A4500B | NITROGEN, NITRITE | 1 | J | µg/L | 0.2 | 3 | 1000 | MCL, MMCL | No |
| ECMWSNP03D | 3-May-00 | 82.4 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 25.5 | | µg/L | 1.5 | 3 | NA | | |
| ECMWSNP03D | 3-May-00 | 82.4 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 20.3 | | µg/L | 0.6 | 2 | NA | | |
| ECMWSNP03S | 3-May-00 | 42.5 | E415.1 | DISSOLVED ORGANIC CARBON | 1.2 | | mg/L | 0.43 | 1 | NA | | |

**Appendix E-1**
**Comparison of Detected Concentrations in Groundwater at FS-12 to Drinking Water Standards**
**January - December 2000**

| Location Identification | Date | Depth (feet) | Method | Analyte | Result | Qualifier | Units | DL | RL | Standard (µg/L) | Type | Standard Exceeded ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ECMWSNP03S | 3-May-00 | 42.5 | MCTNP | NITROGEN | 176 | | µg/L | 8.7 | 30 | NA | | |
| ECMWSNP03S | 3-May-00 | 42.5 | A4500B | NITROGEN, NITRITE | 2.4 | J | µg/L | 0.2 | 3 | 1000 | MCL, MMCL | No |
| ECMWSNP03S | 3-May-00 | 42.5 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 12.2 | | µg/L | 1.5 | 3 | NA | | |
| ECMWSNP03S | 3-May-00 | 42.5 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 1.7 | J | µg/L | 0.6 | 2 | NA | | |
| ECMWSNP03S | 3-May-00 | 42.5 | E415.1 | TOTAL ORGANIC CARBON | 1.2 | | mg/L | 0.43 | 1 | NA | | |
| ECMWTRP01D | 9-May-00 | 87.6 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 12.9 | | mg/L | 2.2 | 5 | NA | | |
| ECMWTRP01D | 9-May-00 | 87.6 | E415.1 | DISSOLVED ORGANIC CARBON | 0.87 | J | mg/L | 0.43 | 1 | NA | | |
| ECMWTRP01D | 9-May-00 | 87.6 | MCTNP | NITROGEN | 52.6 | | µg/L | 8.7 | 30 | NA | | |
| ECMWTRP01D | 9-May-00 | 87.6 | A4500F | NITROGEN, NITRATE (AS N) | 58.3 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| ECMWTRP01D | 9-May-00 | 87.6 | A4500B | NITROGEN, NITRITE | 2.1 | J | µg/L | 0.2 | 3 | 1000 | MCL, MMCL | No |
| ECMWTRP01D | 9-May-00 | 87.6 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 36.8 | | µg/L | 1.5 | 3 | NA | | |
| ECMWTRP01D | 9-May-00 | 87.6 | E415.1 | TOTAL ORGANIC CARBON | 0.52 | J | mg/L | 0.43 | 1 | NA | | |
| ECMWTRP01D | 20-Sep-00 | 87.6 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 12.6 | | mg/L | 2.2 | 5 | NA | | |
| ECMWTRP01D | 20-Sep-00 | 87.6 | MCTNP | NITROGEN | 54.1 | | µg/L | 8.7 | 30 | NA | | |
| ECMWTRP01D | 20-Sep-00 | 87.6 | A4500H | NITROGEN, AMMONIA (AS N) | 13.8 | | µg/L | 5 | 10 | NA | | |
| ECMWTRP01D | 20-Sep-00 | 87.6 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 26.1 | | µg/L | 1.5 | 3 | NA | | |
| ECMWTRP01D | 20-Sep-00 | 87.6 | A4500E | PHOSPHORUS, TOTAL $PO_4$ (AS P) | 23.1 | | µg/L | 0.6 | 2 | NA | | |
| ECMWTRP01S | 9-May-00 | 33.75 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 4.7 | J | mg/L | 2.2 | 5 | NA | | |
| ECMWTRP01S | 9-May-00 | 33.75 | E415.1 | DISSOLVED ORGANIC CARBON | 1.1 | | mg/L | 0.43 | 1 | NA | | |
| ECMWTRP01S | 9-May-00 | 33.75 | MCTNP | NITROGEN | 63.5 | | µg/L | 8.7 | 30 | NA | | |
| ECMWTRP01S | 9-May-00 | 33.75 | A4500F | NITROGEN, NITRATE (AS N) | 8.7 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| ECMWTRP01S | 9-May-00 | 33.75 | A4500B | NITROGEN, NITRITE | 1 | J | µg/L | 0.2 | 3 | 1000 | MCL, MMCL | No |
| ECMWTRP01S | 9-May-00 | 33.75 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 11.6 | | µg/L | 1.5 | 3 | NA | | |
| ECMWTRP01S | 20-Sep-00 | 33.75 | E310.1 | ALKALINITY, TOTAL (AS $CaCO_3$) | 4.3 | J | mg/L | 2.2 | 5 | NA | | |
| ECMWTRP01S | 20-Sep-00 | 33.75 | E415.1 | DISSOLVED ORGANIC CARBON | 0.67 | J | mg/L | 0.43 | 1 | NA | | |
| ECMWTRP01S | 20-Sep-00 | 33.75 | MCTNP | NITROGEN | 32.9 | | µg/L | 8.7 | 30 | NA | | |
| ECMWTRP01S | 20-Sep-00 | 33.75 | A4500H | NITROGEN, AMMONIA (AS N) | 6.9 | J | µg/L | 5 | 10 | NA | | |
| ECMWTRP01S | 20-Sep-00 | 33.75 | A4500F | NITROGEN, NITRATE (AS N) | 3.6 | | µg/L | 0.9 | 3 | 10000 | MCL, MMCL | No |
| ECMWTRP01S | 20-Sep-00 | 33.75 | MCTNP | PHOSPHORUS, TOTAL (AS P) | 4 | | µg/L | 1.5 | 3 | NA | | |
| ECMWTRP01S | 20-Sep-00 | 33.75 | E415.1 | TOTAL ORGANIC CARBON | 0.63 | J | mg/L | 0.43 | 1 | NA | | |

Data Source: AFCEE, 01 February 2001, MMR-AFCEE Data Warehouse

**boldface** results indicate exceedances

DL = detection limit

J = estimated

MCL = U.S. Environmental Protection Agency maximum contaminant level (EPA 810-F-94-001, updated December 1999)

mg/L = milligrams per liter

MMCL = Massachusetts maximum contaminant level, drinking water regulations (310 CMR 22.00) issued by the Massachusetts Department of Environmental Protection (updated spring 2000).

NA = not available

ORSG = Massachusetts Department of Environmental Protection Office of Research and Standards Guideline (Guideline numbers when exceeded would not necessarily result in noncancer adverse health effects but serve as indicators of the potential need for further action.)

Parentheses "AS N," "AS P" and "AS $CaCO_3$" indicate that the measurement represents the total of the molecular weights of the respective atom or compound.

RL = reporting limit

SMCL = secondary maximum contaminant level (standards developed to protect the aesthetic qualities of drinking water.)

µg/L = micrograms per liter

## Appendix E-2
## Comparison of Maximum Detected
## Concentrations in Sediment at FS-12 to Ecological Benchmarks

| Location | Analyte | Date | Maximum Concentration | | Units | Sediment Benchmark* (mg/kg) | Type | Benchmark Exceeded? |
|---|---|---|---|---|---|---|---|---|
| Snake Pond (Study Area) | | | | | | | | |
| ECSNP09 | ACETONE | ####### | 26 | J | µg/kg | NA | NA | NA |
| ECSNP09 | METHYL ETHYL KETONE (2-BUTANONE) | ####### | 3.8 | J | µg/kg | NA | NA | NA |
| ECSNP09 | TOTAL ORGANIC CARBON | ####### | 3320 | | mg/kg | NA | NA | NA |

Data Source: Jacobs Engineering Group Inc., 01 May 2000, Site Environmental Evaluation (SEE) database

* = Benchmarks are from Ecotox Thresholds, *Eco Update*, EPA, 1996.

J = estimated concentration

mg/kg = milligrams per kilogram

NA = not applicable

µg/kg = micrograms per kilogram

# APPENDIX F

# The Use of Groundwater Modeling to Capture the New Zones of Contamination Beneath Snake Pond and Optimize Performance of the FS-12 Remedial System

## THE USE OF GROUNDWATER MODELING TO CAPTURE THE NEW ZONES OF CONTAMINATION BENEATH SNAKE POND AND OPTIMIZING PERFORMANCE OF THE FS-12 REMEDIAL SYSTEM

### INTRODUCTION

During the year 2000, modeling efforts for the FS-12 remedial system focused on the use of groundwater modeling to determine how to capture the water associated with ethylene dibromide (EDB) detections at monitoring wells ECMWSNP02D/2S and 90MW0015. A total of 26 model runs were performed and are described in Appendix F of the *Fuel Spill-12 Quarterly System Performance and Ecological Impact Monitoring Report, April – June 2000* (AFCEE 2000e). A variety of extraction and reinjection well flow rate configurations were modeled to determine the flow rates necessary to capture the contamination at the aforementioned wells and whether the contamination could be captured with the existing remedial system. Particle tracking was used to evaluate the system capture performance of the EDB contamination at the monitoring wells.

Since the last annual report, additional field investigations have been conducted to better conceptualize the extent of the contamination beneath and adjacent to Snake Pond. EDB has been detected in groundwater samples from several new and existing monitoring wells, microwells, and piezometers in the vicinity of the northeastern shore of Snake Pond.

The travel path of the EDB to these locations most likely varies, depending on the areal location and depth of the detection. For example, contamination discovered in the area of monitoring wells 90MW0101 and 90MW0102 probably represents the migration of contamination originally situated west of the design plume shell. Detections at microwells ECMWSNP02D/2S potentially originated from an area west of the reinjection wells at the time of system start-up. Similarly, contamination at monitoring wells 90MP0060A and 90MW0049 may also represent EDB originally west or beneath the reinjection wells at the time of system start-up that was forced deeper into the aquifer by reinjection stress. An area of weaker capture between reinjection wells 90RIW0010 and

90RIW0013 is a potential pathway for contamination detected at monitoring wells 90MW0103A and 90MW0100.

Further delineation of the extent of contamination in this area required additional simulations with new flow rate distributions to capture the contaminant mass.

## FS-12 MODELING OBJECTIVES AND APPLICATION

The primary objective of the latest modeling efforts at FS-12 was to more critically evaluate the flow rate requirements for the contaminated groundwater discovered beneath Snake Pond while optimizing the performance of the FS-12 extraction, treatment and reinjection (ETR) system by improving capture within the main body of the plume. Related objectives were to determine what portion of the newly discovered contamination would reach Snake Pond under various scenarios, the drawdown impacts to Snake Pond due to remedial system operation, changes in total flux through the pond due to remedial system operation, and the sensitivity of capture performance to a lower conductivity unit along the bottom of Snake Pond.

A total of 22 additional model scenarios (Scenarios 28 – 48) were used to evaluate the different configurations of pumping relative to capture of the three additional zones of contamination and the original basis of plume design (the plume shell developed based on data collected through 1996). Based on the results of the new contaminant detections at FS-12, three additional zones of contamination were mapped (three-dimensional zones) and seeded for particle tracking. An important aspect of these simulations was the optimization of flow rate requirements for the main body of the FS-12 plume. The low hydraulic conductivity layer representing pond sediments at the bottom of Snake Pond was introduced in some of the later model runs (40 – 46 and 48) to determine its impact on capture performance, drawdowns, and flow regimes in and around Snake Pond. Capture zones were determined for each scenario by the backward particle tracking of a seed set from the extraction wells. A variety of conceptual ideas were tested, including:

- Converting one or more reinjection wells to extraction wells near the new zones of contamination,
- Eliminating reinjection along the western boundary of the FS-12 plume to avoid dispersal of the newly discovered contamination and,
- Reducing flow rates along the axial or southern fence to accommodate additional extraction near the new zones of contamination without significant modifications to the current treatment system. This included comparing system performance to the original basis of design plume shell (developed in 1996) and the plume shell developed for the FS-12 plume during the late summer of 2000 (see Appendix I).

Table F-1 is a model run summary of the 22 additional steady state flow simulations completed for this work. Model simulations indicated that flow rates required to capture the main body of the FS-12 plume could be reduced; therefore, simulations focused on achieving remedial performance goals (plume capture) within existing plant capacities. It also includes three additional scenarios, one representing the average operational conditions from September 1997 through July 2000, one representing the average operational conditions from August 2000 through December 2000, and the previously recommended Scenario 24. The table shows the total extraction and reinjection flow rates and a description of the simulation.

**Table F-1**
**Model Run Summary**

| Run Number | Total Extraction (gpm) | Total Injection (gpm) | Condition Simulated |
|---|---|---|---|
| Average Flow Condition 1 | -721 | 721 | Average Operational Conditions from September 1997 through July 2000 |
| Average Flow Condition 2 | -721 | 721 | Average Operational Conditions from August 2000 through December 2000 |
| 24 | -796 | 796 | Test the impact of high flows at the flanking wells with lower flows toward the central portion of the fence |
| 28 | -846 | 846 | Variation of Scenario 24, features extraction at RIW9 at rate of 50 gpm |
| 29 | -891 | 891 | Variation of Scenario 24, features extraction at RIW9 at rate of 95 gpm |
| 30 | -891 | 891 | Variation of Scenario 24, features extraction at RIW10 at rate of 95 gpm |
| 31 | -896 | 896 | Variation of Scenario 24, features extraction at RIW9 and RIW10 at rate of 50 gpm |
| 32 | -896 | 896 | Variation of Scenario 24, features extraction at RIW13 at rate of 100 gpm and shuts off reinjection at RIWs 5 – 10 and 14 |
| 33 | -896 | 896 | Variation of Scenario 24, features extraction at RIW14 at 100 gpm and shuts off RIWs 5 – 10, 13 and 15 |
| 34 | -896 | 896 | Variation of Scenario 24, features extraction at RIW14 at 100 gpm and shuts off RIWs 5 – 10, 13 and 15 |

**Table F-1**
**Model Run Summary**

| Run Number | Total Extraction (gpm) | Total Injection (gpm) | Condition Simulated |
|---|---|---|---|
| 35 | -869 | 869 | Variation of Scenario 24, features extraction at RIW14 at 100 gpm and shuts off RIWs 5 – 10 and 13, redistributes reinjection to flanking wells (18, 26, 27, 28-30) |
| 36 | -869 | 869 | Variation of Scenario 24, features extraction at RIW10 (55 gpm) and RIW13 (45 gpm) and shuts off RIWs 5 – 9 and 14, redistributes reinjection as in Run 2 |
| 37 | -869 | 869 | Variation of Scenario 24, features extraction at RIW10 (55 gpm) and RIW14 (45 gpm) and shuts off RIWs 5 – 9 and 13, redistributes reinjection even more heavily to flanking wells |
| 38 | -869 | 869 | Variation of Scenario 30, shuts off RIW13, redistributes reinjection evenly to remaining RIWs |
| 38b | -986 | 986 | Variation of Scenario 30/38, adds additional extraction well adjacent to RIW10 pumping at 95 gpm, redistributes reinjection evenly to remaining RIWs |
| 39 | -869 | 869 | Variation of Scenario 38, RIWs 5 and 6 on at 30 gpm each |
| **BEGIN POND MUCK MODELS (TOP THREE LAYERS OPEN TO AQUIFER)** | | | |
| 40 | -765 | 765 | Variation of Scenario 30 with reduced flow along southern extraction fence from wells 20 through 24 and 28 through 30. Reduces reinjection evenly. |
| 41 | -625 | 625 | Variation of Scenario 40 (same reduction in southern fence extraction) with additional reductions to axial fence flows. Reduces reinjection evenly. |
| 42 | -891 | 891 | Variation of Scenario 43 with reinjection wells 13 and 14 off |
| 43 | -891 | 891 | Variation of Scenario 24, features extraction at RIW10 at rate of 95 gpm |
| 44 | -525 | 525 | Variation of Scenario 41 with a 5 gpm reduction in all extraction well flow rates with the exception of wells 25, 26, 27 and RIW10. |
| 45 | -831 | 831 | Variation of Scenario 30 with reduced flow along northern axial wells 6 – 13. Reduces reinjection evenly. |
| 46 | -800 | 800 | Variation of Scenario 40 with reductions to axial wells 11 and 12 and southern fence well 30, and increases to southern fence wells 23, 24, 28, and 29. |
| 47 | -800 | 800 | Copy of Scenario 46 with no pond muck liners. Ponds are open to aquifer. |
| 48 | -800 | 800 | Variation of Scenario 46 with RIWs 13, 14 on at 15 gpm each; RIWs 15, 16, 17, 28, 29 reduced to 75 gpm from 90, 90, 90, 85, and 90 gpm, respectively. |

gpm = gallons per minute
RIW = reinjection well

Scenarios 28 through 37 were variations of Scenario 24, the recommended scenario from the previous modeling effort. The remaining model runs were variations on other scenarios that showed promise, such as Scenarios 30, 40 and 46. For all scenarios listed in Table F-1, all reinjection was eliminated for wells 90RIW0005 through 90RIW0009, which is a deliberate reduction in reinjection stress on the western side of the plume.

Development of a particle tracking seed set to represent the contamination beneath the pond was an iterative process. As new results from groundwater sampling during the latter part of 2000 at FS-12 were evaluated, modifications to the location and extent of the new zones of contamination were made. This resulted in a series of seed sets representing the latest conceptualization of the zones beneath the pond. Areas were bounded both in the x-y plane and vertically based on the sampling results, and seeded uniformly. The final seed set representing the three zones consisted of 4212 particles (Figure 7-1). Zone A encompasses an area around monitoring well 90MP0059B and ranges in depth from -20 feet mean sea level (ft msl) to -60 ft msl. Zone B is centered around EDB detections at microwells ECMWSNP02S/D and monitoring well 90MP0060A and is further subdivided into three sub-zones that range from -10 to -102 ft msl. The zone is higher in the aquifer at its upgradient end near ECMWSNP02S/D and deeper at its downgradient end around 90MP0060A. Zone C is a single zone of contamination from -10 to -58 ft msl based on the screening data from monitoring well 90MW0100.

**FS-12 Modeling Results**

Capture performance of several of the model scenarios was evaluated by forward tracking a particle seed set developed by combining the previously mentioned seed set from the three additional zones of contamination and the seed set from the original basis of design plume. The original design basis seed set was included as a conservative method of evaluating performance, since the actual extent of contamination within the main body of the plume is smaller after 3 years of system operation. Table F-2 shows the fate of the combined seeds for several scenarios, with Scenarios 46 and 48 having the best capture performance and fewest particles to the pond.

**Table F-2**
**Model Capture Summary**

| Scenario Number | To Pond | Captured | Maximum Time | Total Capture (Percentage) | Mass Discharged To Pond (Percentage) |
|---|---|---|---|---|---|
| 30 | 486 | 9103 | 26 | 94.7 | 5.1 |
| 40 | 129 | 9483 | 3 | 98.6 | 1.34 |
| 46 | 118 | 9624 | 5 | 98.7 | 1.21 |
| 47 | 132 | 9609 | 6 | 98.6 | 1.35 |
| 48 | 118 | 9622 | 7 | 98.7 | 1.21 |

To determine the impact of the redistribution of flow in the new scenarios on Snake Pond water levels, two locations in Snake Pond were selected and water levels from the ambient model condition and several scenarios were calculated. Model-predicted changes in the elevation of the surface of Snake Pond were then calculated for Scenarios 24, 30, 38, 38b, 39 and 46 (Table F-3). These show that in all of the simulations, the effects on Snake Pond are relatively small compared to Scenario 24.

**Table F-3**
**Model-Predicted Changes in the Elevation of the Surface of Snake Pond (ft)**

| Pond Locations | Average Operating Condition (first half of 2000) | Average Operating Condition (second half of 2000) | Scenario 24 | Scenario 30 | Scenario 38 | Scenario 38b | Scenario 39 | Scenario 40 |
|---|---|---|---|---|---|---|---|---|
| Easting 867688 Northing 251375 | -0.17 | -0.08 | -0.32 | 0.03 | 0.06 | 0.12 | 0.03 | 0.13 |
| Easting 867481 Northing 250625 | -0.19 | -0.16 | -0.4 | -0.07 | -0.03 | 0.02 | -0.04 | 0.05 |

Note: Negative values indicate an increase in pond surface elevation.

In addition to drawdown and mounding, total flux through Snake Ponds was calculated for several model scenarios, including the ambient condition (no active remediation), the average operating condition (for the first half of 2000), Scenario 38b and Scenario 46 (Table F-4). The purpose of this was to evaluate what potential effects the ETR system

operation has on the amount of groundwater flowing through Snake Pond. These values were determined by creating a smaller sub-model within the FS-12 model consisting only of Snake Pond. Output from the smaller sub-model provided the total inflow and outflow. The values in Table F-4 indicate that operation of the remedial system has little influence on flux through the pond, with only a plus/minus 4 percent change in flux for any scenario evaluated compared to the ambient condition.

**Table F-4**
**Total Flux Through Snake Pond in Million Gallons Per Day**

| Scenario | Pond Area | Recharge | Inflow | Outflow |
|---|---|---|---|---|
| Ambient Condition | 81 Acres | 0.17 | 0.53 | -0.70 |
| Average Operating Condition | 81 Acres | 0.17 | 0.56 | -0.72 |
| Scenario 38b | 81 Acres | 0.17 | 0.50 | -0.67 |
| Scenario 46 | 81 Acres | 0.17 | 0.50 | -0.67 |

In the FS-12 model, all of the ponds including Snake Pond have been modeled by treating the pond water as another unit with a very high conductivity value (50,000 ft/day). In previous modeling, these pond units have been in direct contact with the high conductivity (~300 ft/day) units of the aquifer. To determine what effect modeling low conductivity sediments along the bottom of Snake Pond would have on capture and the amount of contamination discharging into Snake Pond, a low conductivity (10 ft/day) layer was used in the deeper portions of the pond in some of the later simulations. In all scenarios, the shallow portion of the pond (simulated as layers 1, 2 and 3) were left unchanged (high pond conductivity in contact with aquifer sediments). For an independent check on the effects of these low conductivity pond sediments on capture and drawdown, Scenario 47 was run as a copy of Scenario 46, with the exception that Scenario 47 had no pond liners. The results in Table F-2 indicate that the pond liners had a minimal effect on capture and the number of particles entering the pond. Only 14 additional particles entered the pond (in the scenario that did not have the liner – Scenario

47), and one additional particle reached maximum time for the particle tracking simulation.

Based on the results of these most recent modeling efforts, the flow regime from Scenario 46 was selected as the most efficient method of operating the FS-12 remedial system. Table F-5 contains the extraction and reinjection rates for Scenario 46. The total flow rate for this scenario was 800 gpm, which includes an additional extraction of 95 gpm from 90RIW0010. Compared to Scenario 24, flow rates were lower at 90EW0011 (5.5 gpm), 90EW0012 (4.5 gpm), 90EW0020 (5 gpm), 90EW0021 (5 gpm), 90EW0022 (10 gpm), 90EW0023 (10 gpm), 90EW0024 (7 gpm), 90EW0028 (5 gpm), 90EW0029 (15 gpm) and 90EW0030 (24 gpm).

**Table F-5**
**Extraction and Reinjection Rates for Model Scenario 46**

| Extraction Well ID | Flow Rate (gpm) | Reinjection Well ID | Flow Rate (gpm) |
|---|---|---|---|
| 90EW0006 | 0 | 90RIW0005 | 0 |
| 90EW0007 | -32 | 90RIW0006 | 0 |
| 90EW0008 | -37 | 90RIW0007 | 0 |
| 90EW0009 | -33 | 90RIW0008 | 0 |
| 90EW0010 | 0 | 90RIW0009 | 0 |
| 90EW0011 | -14 | 90RIW0013 | 0 |
| 90EW0012 | -14 | 90RIW0014 | 0 |
| 90EW0013 | -27 | 90RIW0015 | 90.3 |
| 90EW0014 | -32 | 90RIW0016 | 90.3 |
| 90EW0015 | -32 | 90RIW0017 | 90.3 |
| 90EW0016 | -32 | 90RIW0018 | 25.3 |
| 90EW0017 | -39 | 90RIW0020 | 30.3 |
| 90EW0018 | -43 | 90RIW0021 | 30.3 |
| 90EW0019 | -32 | 90RIW0022 | 30.3 |
| 90EW0020 | -10 | 90RIW0023 | 30.3 |
| 90EW0021 | -10 | 90RIW0024 | 30.3 |
| 90EW0022 | -15 | 90RIW0025 | 30.3 |
| 90EW0023 | -20 | 90RIW0026 | 30.3 |
| 90EW0024 | -30 | 90RIW0027 | 26.3 |

**Table F-5**
**Extraction and Reinjection Rates for Model Scenario 46**

| Extraction Well ID | Flow Rate (gpm) | Reinjection Well ID | Flow Rate (gpm) |
|---|---|---|---|
| 90EW0025 | -41 | 90RIW0028 | 85.3 |
| 90EW0026 | -40 | 90RIW0029 | 90.3 |
| 90EW0027 | -42 | 90RIW0030 | 90.3 |
| 90EW0028 | -50 | | |
| 90EW0029 | -50 | | |
| 90EW0030 | -30 | | |
| 90RIW0010* | -95 | | |
| Total Flow | -800 | Total Flow | 800 |

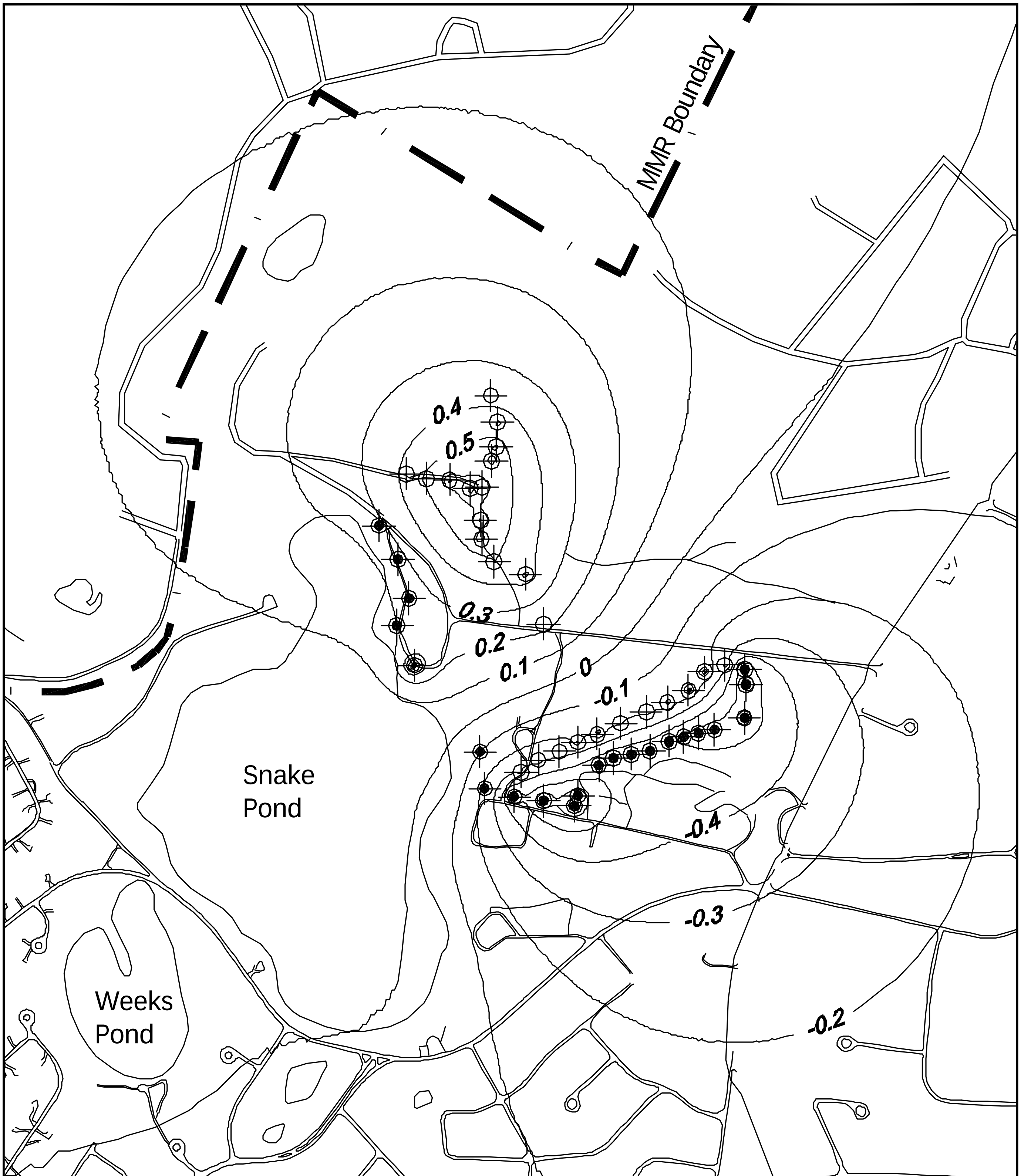
* A reinjection well operated as an extraction well in the simulation.

## CONCLUSIONS

The numerical modeling results indicate that the FS-12 remedial system should be operated with the extraction and reinjection rates specified in Scenario 46. This scenario provides a high percentage of capture of those particles representing the contamination beneath the pond and the main body of the FS-12 plume while operating within the flow rate capacities of the current treatment plant. Additional evaluations of potential drawdown and mounding (particularly those in the Snake Pond area) due to system operation showed minimal impacts in Scenario 46 (Figure F-1). Ongoing monitoring and continued optimization analysis is occurring, so additional modifications to the system are expected.

Future modeling and monitoring efforts at the FS-12 site will include a comparison of field-measured chemical and hydraulic data with those predicted by the model to verify system performance and determine whether adjustments to system operational parameters are necessary. As noted previously, the elimination of flow to several reinjection wells has resulted in more total flow directed to the reinjection wells along the southern fence. The model will be used to examine the impact of this redirected reinjection flow to the southern fence and determine whether recirculation between extraction and reinjection wells is hindering extraction well performance.

(intentionally blank)




## Legend

0.2 – Drawdown Contour (ft)

-0.2 – Mounding Contour (ft)

– Extraction Well

– Reinjection Well

Note: Contour interval is 0.1 ft.

JACOBS ENGINEERING

FS-12 Scenario 46
Drawdown and Mounding
Model Layer 10

Massachusetts Military Reservation
Cape Cod, Massachusetts

12/26/01 WR FS12-An00-Sp-08.dwg

Figure F-1

# APPENDIX G

# Temporal and Spatial Optimization of the Fuel Spill-12 Sampling Network for EDB Monitoring

# TABLE OF CONTENTS

# TABLE OF CONTENTS



**<u>Tables</u>**

## TABLE OF CONTENTS

(intentionally blank)

## ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| ANOVA | analysis of variance |
| EDB | ethylene dibromide |
| ERPIMS | Environmental Resources Program Information Management System |
| FS-12 | Fuel Spill-12 |
| ft | feet |
| GKW | global kriging weight |
| GMS | Groundwater Modeling System |
| GSLIB | Geostatistical Software Library |
| MMR | Massachusetts Military Reservation |
| msl | mean sea level |
| nCell | the number of cells influenced by a given observation |
| SPEIM | system performance and ecological impact monitoring |
| µg/L | micrograms per liter |
| 1-D | one-dimensional |
| 2-D | two-dimensional |
| 3-D | three-dimensional |

(intentionally blank)

# 1.0 INTRODUCTION

Sampling networks evolve in response to a variety of needs. Initially, the need to characterize the nature and extent of contamination is the dominant driver. Once this has been accomplished, additional chemical and physical data are needed for remediation system design. Next, performance of the remedial system must be verified, and finally, sentry wells are needed to provide timely detection of the migration of previously unidentified contamination. Monitoring wells may also be installed to respond to regulatory and stakeholder concerns or to fill data gaps.

This multitude of requirements typically results in an extensive network of monitoring wells, many of which are no longer essential once the remediation system is running. At this time, monitoring focuses on system performance, with monitoring wells serving the following purposes:

- Determining the decrease in plume size and concentration in response to remediation.
- Monitoring concentrations downgradient of the remediation system to see that design goals are met.

Cost-efficient monitoring requires reducing to the extent possible the number of locations and their frequency of sampling while still satisfying the above criteria. This appendix examines the Fuel Spill-12 (FS-12) sampling network to determine the effects of less frequent sampling and the elimination of spatially redundant locations. Two approaches each for temporal and spatial optimization are applied in the following sections:

- Temporal variability using analysis of variance (ANOVA) (Section 3.0)
- Temporal optimization using iterative thinning (Section 4.0)
- Spatial optimization using kriging (Section 5.0)
- Spatial redundancy using particle tracking (Section 6.0).

These approaches focus on definition of the FS-12 plume. Their results are combined with knowledge of other monitoring purposes served by each well (e.g., sentry,

breakthrough, or stakeholder) to produce final recommendations for reducing the number and frequency of wells sampled.

# 2.0 BACKGROUND — PREVIOUS STUDIES AT MMR

Cameron and Hunter (1999; Cameron 1999) have used the extensive data sets available for the Eastern Briarwood and FS-12 plumes at the Massachusetts Military Reservation (MMR) to develop a geostatistical approach (i.e., kriging) to evaluate spatial and temporal redundancy in long-term monitoring networks. Spatial redundancy occurs where monitoring wells are too closely spaced; measurements in one well closely resemble measurements in neighboring wells. Temporal redundancy occurs when monitoring wells are sampled too frequently; successive measurements in a given monitoring well closely resemble each other and provide little new information. The level of certainty in plume geometry would not be significantly reduced by removing redundant wells or measurements.

Cameron and Hunter also investigated iterative thinning as a tool for temporal optimization. This approach examines trends in individual monitoring wells as a function of time. Temporal redundancy is assessed by removing observations from the data set until the calculated slope differs significantly from the original slope.

## 2.1 OVERVIEW OF KRIGING

The following discussion considers ordinary kriging, in this case dealing with concentrations obtained from monitoring wells. The principles are identical for indicator kriging, with the concentrations replaced by the indicator values. The discussion applies equally to temporal as well as spatial kriging; the only difference is that the independent variable is time rather than distance. Temporal kriging is also limited to one dimension rather than three.

### 2.1.1 Variograms

For groundwater contamination, kriging is used to interpolate known concentrations at monitoring wells onto a regular grid (two-dimensional [2-D] or three-dimensional [3-D] for spatial kriging, one-dimensional [1-D] for temporal kriging). At each grid cell, weights are determined for all of the known observations, and the weighted average is

calculated. Ideally, the weights are derived from the statistical structure of the observations, as summarized in the variogram (Figure G-1). The variogram is a plot of the variance in concentration as a function of distance (time, for temporal kriging) from the point of interest. Weights are the reciprocals of the variances. Thus, at small distances where concentrations at one point closely resemble concentrations nearby, variances are low and weights will be high. As distance increases, concentrations become more variable (less correlated), so variances increase and weights decrease. At some distance, called the range, the variance reaches a plateau. The variance at this distance is called the sill.

The idealized variogram in Figure G-1 is composed of the experimental variogram calculated from the observations and the model variogram, providing an interpretation of the experimental variogram that can be used for interpolation. The experimental variogram is calculated from all possible pairings of observations. The pairings are grouped into intervals of constant "lag." For a given lag distance (or time), the variance is essentially the average squared difference in concentration for all pairs of observations within the lag interval.

Measurements from locations separated by a distance equal to or greater than the range are essentially uncorrelated. The range may thus be interpreted as the distance at which there is no redundancy, no "overlap" between the samples. Another way to visualize the significance of the range is to think of it as the radius of a "sphere of influence" (circle in 2-D, or line in 1-D) that encloses a volume around the measurement location in which the measurement has some influence on the estimated concentration. That influence is high adjacent to the measurement location and declines to a low value at the edge of the sphere of influence. Outside its sphere of influence, the weight associated with a measurement is low but constant. (A consequence of this is that interpolated values at locations separated by more than the range distance from the nearest measurement location will tend toward the average of all the points lying within the search radius specified during kriging.)

### 2.1.2 Global Kriging Weights and Variance Mapping

Absolutely no redundancy may not be a desirable goal for a sampling network. Instead, for optimization, it is more useful to know which locations of an existing network contribute the least to knowledge of the distribution of a contaminant. Global kriging weights and before and after variance maps are useful tools in this regard.

After the experimental variogram has been modeled, concentrations can be estimated for any desired location. Typically, this will be a grid, permitting visualization of the plume. For each grid node, each measurement location will have a unique weighting factor, calculated as a function of distance, based on the model variogram. At a measurement location, the sum of the grid-node weights becomes the global kriging weight. Locations that are essential to the estimated gridded concentrations will have high global kriging weights, whereas those that contribute little will have low global kriging weights. (Some non-essential locations may have intermediate weights, however. Members of a pair of adjacent locations are likely to have nearly identical global kriging weights, perhaps in the intermediate range, but little information would be lost if one of the two locations was removed from the network.)

Variance maps provide a means of visualizing the uncertainty associated with the estimated concentration field. At each grid cell, a variance is calculated from the weighted contributions of the measurement locations. Comparing the variance maps before and after removing one or more locations from the sampling network provides a qualitative and visual assessment of the importance of the deleted locations. If there is little change, the locations are not important, whereas a large change signifies essential locations that should be retained. (An area of high data density may have high variance if the contaminant distribution is heterogeneous on a scale similar to, or smaller than, the distance between measurement locations. Removal of one or more locations here may reduce the variance in the vicinity, but would not be desirable. In effect, the true range is too short to be quantified by the network, and all locations are essentially independent and uncorrelated.)

### 2.1.3 Complicating Factors Affecting the Kriging Process

An assumption implicit in the use of kriging to interpolate a contaminant plume is that the statistical structure of the observations is the same everywhere. In reality, this is true only within limited domains. Within a plume, concentrations are generally greater than some specified limit (often the detection limit or the maximum contaminant level), and may be highly correlated only over short distances because of the heterogeneous distribution of the contaminant within the plume. Here, the sill will be reached at a small range. Outside the plume, concentrations are low or zero, and thus are highly correlated over long distances, resulting in a large range when the sill is reached. If the two domains are mixed, as is usually the case with observations collected across a site, the experimental variogram can become quite complex. It may be possible to distinguish a sill and range within the plume, a second sill and range corresponding to the dimensions of the plume, and a third sill and range that includes observations outside of the plume. More commonly, the experimental variogram becomes jumbled and erratic, so that parameters for the model variogram must be selected based on plausibility and realistic appearance of the interpolated results.

Additional complexities arise because of elongation of the plume in the direction of groundwater flow. This results in a large range parallel to groundwater flow, with much shorter ranges in the transverse and vertical directions. These can be accommodated in the kriging process using anisotropy factors.

## 2.2 STATISTICAL TECHNIQUES USED BY CAMERON AND HUNTER

### 2.2.1 Indicator Kriging and Variogram Averaging

With ordinary kriging, Cameron and Hunter were unable to produce variograms with recognizable sills. Their difficulties were almost certainly related to the presence of multiple domains in their FS-12 data set. They chose to simplify the problem by focusing only on delineating the plume boundary in space and time, while ignoring the internal geometry of the plume. Indicator kriging accomplishes this by transforming the data set from a continuum of concentration values to binary indicators showing only whether a

cutoff value has been exceeded. Further processing included variogram averaging and non-linear smoothing. Specifically, variogram trends were revealed by:

- Transforming each reported concentration value into an indicator value (i.e., 0 for concentration greater than cutoff value or 1 for concentration less than or equal to cutoff value).
- Combining variograms into an average composite variogram. For spatial interpolation, variograms from different quarters were averaged. For temporal analysis, variograms were averaged across multiple wells.
- Applying non-linear smoothing techniques to the composite variogram. For this work, Cameron and Hunter chose a locally-weighted regression scheme, similar to a moving-window average. Other schemes available in standard statistical software packages would probably be equally suitable.

Conceptually, there are many limitations to indicator kriging. Knowledge of the internal spatial or temporal structure of the plume at concentrations greater than the cut-off value is lost. This would be acceptable if the only characterization requirement is to bound the plume. However, system performance evaluations and predictions require more detailed knowledge of the contaminant distribution. It is important to show that the plume is not spreading, and that the total mass of the contaminant in groundwater is declining as remediation proceeds. Thus, ordinary kriging must be used, although the techniques of variogram averaging and non-linear smoothing should still be useful. Potential options for reducing the scatter inherent in ordinary kriging include:

- Kriging by domain, pre-filtering the data set to include only those monitoring wells within the plume.
- Testing other experimental variograms (e.g., the pair-wise semi-variogram available in the Groundwater Modeling System [GMS] software package [EMS-I 2000]).

### 2.2.2 Spatial Kriging

Cameron and Hunter kriged spatial data in two dimensions. The 3-D data set was converted to 2-D by removing the elevation component. At 2-D locations with multiple measurements, the highest measurement was selected. Similarly, if there were multiple measurements in a quarter, the highest was selected. The data set was then transformed

to indicator values, and separate variograms were calculated for each quarter (Figure G-2).

The resulting variograms contain multiple peaks and valleys, with no obvious sills. Several factors probably contribute to this:

- The data set has been converted to 2-D.
- Anisotropy due to elongation of the plume in the direction of groundwater flow has not been incorporated; the variogram was constructed assuming a circular rather than elliptical zone of influence around each point.
- The data set contains insufficient pairs of measurements at certain distances to reliably delineate the variogram.

Treatment of the plume as 2-D underestimates location separations. The current plume shell for the FS-12 EDB plume, produced by Jacobs using GMS, is 180 feet thick and has vertical anisotropy (ratio of vertical to horizontal weights as a function of distance) of 0.02. Thus, Cameron and Hunter's 2-D approach treats samples as adjacent when they may be separated by as much as 180 feet vertically. Inclusion of anisotropy indicates that a vertical separation of 180 feet is equivalent to a horizontal separation of 9000 feet. Cameron and Hunter also did not incorporate horizontal anisotropy (ratio of perpendicular to parallel weights [directions relative to groundwater flow] as a function of distance). The FS-12 ethylene dibromide (EDB) plume shell has horizontal anisotropy of 0.5. Using this anisotropy, the resulting weighting factors are equivalent to an effective separation of wells perpendicular to groundwater flow that is twice the physical distance between them, rather than equal to the physical distance as in Cameron and Hunter's approach.

Some of the variability evident in Figure G-2 was eliminated by creating an average variogram from each of the seven quarterly variograms, as shown in Figure G-3. This variogram exhibits much less scatter and begins to show a definite sill and range. The drawbacks of collapsing the data set to 2-D and ignoring anisotropy still apply. Under these conditions, however, one might expect to see a sill delineated at a range corresponding to half the plume width. The FS-12 EDB plume is approximately 2400

feet wide, so an appropriate range is about 1200 feet. Such a model variogram (heavy solid line) is consistent with the experimental variogram in Figure G-3, but other model variograms (light dotted lines) are also plausible.

The remainder of Cameron and Hunter's spatial optimization technique involves using the time-averaged variogram to interpolate the indicator values to a grid, and using the global kriging weighting factors to indicate which locations are most redundant (Figure G-4). In the figure, locations with the greatest weights are red, and the lowest weights are purple. Although the basic approach is sound, the decision to collapse the data set to 2-D has further negative ramifications. Not only is the variogram affected by collapsing the spatial data, but the kriging weights could be misleading; wells could be tagged as redundant without regard to well-screen elevation. Although treating the problem in three dimensions adds significant complexity, it is essential if the optimization is to be applicable to a 3-D plume.

Cameron and Hunter used variance maps and concentration maps to visualize the effects of removing selected wells from the sampling network (Figure G-5). These served as an independent check that the deleted wells were truly redundant, and provided a means of communicating the results of optimization to non-statisticians. Other checks were obtained by computing the global kriging variance and monitoring changes in this parameter as wells are removed.

The conceptual framework behind spatial kriging appears sound, but its utility cannot be accurately judged for FS-12 based on Cameron and Hunter's results because of the simplifying assumptions of the 2-D approach with no anisotropy.

### 2.2.3 Temporal Kriging

Cameron and Hunter also applied the kriging technique to temporal data at individual wells. Again, indicator kriging was used because ordinary kriging produced uninterpretable variograms. Temporal kriging is 1-D by necessity, with time as the independent variable. As with spatial kriging, an average variogram composited from the

individual variograms proved most useful (with much less scatter). Such a variogram provides a site-wide overview of temporal redundancy.

An example composite variogram is provided in Figure G-6, examining time separations up to 600 days. For the EDB variogram, two or three sills or peaks are possibly visible. These peaks may be expressions of wells with different statistical properties mixed in the same data set.

In a temporal sense, there are three major types of wells:

- Wells that are strongly influenced by extraction well pumping. For these wells, the concentration trend will be driven by the extraction well performance and efficiency, and the time separation between the peak concentration and final nondetect concentration should be relatively short. Thus, the variogram sill should be reached rapidly.
- Wells that are affected only by plume migration. Such wells are within a plume boundary but are not influenced by extraction well pumping. One would expect to see relatively long time separations between the peak concentration and the nondetect concentration, and reaching the nondetect concentration is essentially reaching the variogram sill where the concentration difference has to level off to its maximum value. If the concentration-versus-time series extends back in time far enough to see nondetects for a location, then one should expect to see a distribution with a peak and tails on both sides of the peak.
- Wells that are outside of the plume boundary. Such wells are usually nondetect. There is no concentration trend over time, hence no useable variogram information.

Any given well may change type with time. For example, a well initially downgradient of the plume may be Type 2 as the plume begins to pass it by, but may become a Type 1 well following installation of the remediation system. Also, the temporal information is much more limited than the spatial information because there are fewer time separations than spatial separations. If temporal data are restricted to those which post-date FS-12 extraction well installation to avoid changing well types, then there are only a few temporal separations from which to derive a temporal variogram.

Another source of difficulty in constructing temporal variograms may be the scale of heterogeneity within a plume. For example, wells in the FS-1 plume show month-to-month variations nearly as large as the quarterly and annual variations. The experimental variogram in Figure G-3 suggests that similar variations are present in the FS-12 data set, because short-term variance (less than 50 days) is nearly as large as long-term variance (more than 1 year).

These difficulties suggest that temporal kriging has serious limitations for determining sampling frequency. A high degree of small-scale heterogeneity may preclude the use of any statistical tool; instead, it may be necessary to assess the sampling frequency in light of the data quality objectives that must be met. If plume geometry is to be assessed annually, then more-frequent sampling rounds are of little use; such data could be used only by projecting it with a groundwater flow model to coincide with the annual synoptic event. However, such migrated data would be of lower confidence than the synoptic data, introducing additional complexities into the kriging process. To minimize contention over plume geometry, only synoptic data should be used. Thus, frequency of data interpretation becomes an important consideration in determining sampling frequency.

### 2.2.4 Temporal Trend Analysis Using Iterative Thinning

Iterative thinning is a well-by-well approach examining the consistency of temporal trends as observations are randomly removed from the trend calculations. As described by Cameron and Hunter, iterative thinning was carried out according to these steps:

1. Calculate the slope and confidence interval for the complete data set for a well.
2. Randomly remove one of every N data points, where N = 10 to 20. (This removes 5 percent to 10 percent of the data.)
3. Calculate a new slope and compare it with the original slope ± the confidence interval.
4. Assess accuracy. If the new slope is within the confidence interval around the original slope and the sign of the slopes are the same, go back to Step 2; otherwise, stop.

5. Calculate the non-redundant sampling interval, equal to the total time interval spanned by the complete set divided by the number of observations remaining after maximal thinning (but still meeting the accuracy requirements in Step 4).

Cameron and Hunter point out that this method could result in each well being sampled on a different schedule. Alternatively, one could choose the minimum interval and apply it to all wells. Data quality objectives may support selection of a longer interval, trading detailed temporal knowledge for less frequent sampling. If a sampling interval longer than the maximum interval is selected, there is a risk of losing track altogether of the temporal trends within the plume.

Cameron and Hunter recommend using Sen's method (Gilbert 1987) to calculate the slope and confidence interval. In this non-parametric method, depicted in Figure G-7, the slope is the median value of all possible pair-wise slopes. The desired confidence interval, e.g., 90 percent, would be the high and low values from the middle 90 percent of the ordered list of slopes. Although at least eight data points are needed to estimate the confidence interval, Sen's method offers some important advantages: (1) it is robust in the presence of outliers, and (2) unlike least-squares linear regression, makes no assumptions about the statistical nature of the data.

Iterative thinning appears to be the most promising of the two methods proposed by Cameron and Hunter for examining temporal redundancy. It is easy to implement and understand, and should provide results that are much less subjective than picking poorly defined sills and ranges from variograms. Sen's method for slopes and confidence intervals is probably much superior to linear regression and can be easily automated with a small computer program.

### 2.2.5 Staggered Sampling

As an outgrowth of the data needs for temporal kriging, Cameron and Hunter proposed a staggered sampling schedule with a random subset of wells sampled quarterly. Subsets of wells would be chosen so that all wells are sampled over the course of one non-redundant sampling period (i.e., one year for FS-12, five quarters for Eastern Briarwood).

This scheme would provide an average sampling interval equal to the non-redundant sampling period, but the variations in interval from as little as one quarter to nearly twice the sampling period would result in a wide range of lag times when plotted on a temporal variogram.

This idea is less useful with respect to spatial kriging. In order to combine data collected at different times, the earlier observations should be migrated along inferred groundwater flow paths until they coincide in time with the later observations. Such migrated data would be of lower quality than unmigrated data and could be challenged by regulators or other stakeholders. If wells are to be sampled only once during a non-redundant sampling period, they should all be sampled at the same time in a synoptic event, making interpretation as simple and direct as possible.

(intentionally blank)

# 3.0 TEMPORAL VARIABILITY ANALYSIS USING ANOVA

An exploratory statistical investigation to determine the efficacy of various sampling intervals for EDB in the FS-12 plume was undertaken. In order to optimize groundwater sampling, it is necessary to balance logistics (i.e., a realistic inter-sampling period), costs and necessity. "Necessity" refers to the minimum sampling frequency that is required to provide effective data trends that would provide an optimal pollution assessment and rehabilitation program. In the case of FS-12, it is necessary to optimize sampling by maximizing the time gap between sampling events without losing valuable information about temporal contaminant trends. Unlike the temporal optimization method described in Section 4.0, the current investigation examines the total variability of the EDB data set, apportioning it between a temporal component and all other sources of variability. Importantly, this investigation does not look for trends in the EDB data or assess their persistence at various sampling intervals.

All FS-12 EDB data (E504 analytical method) since mid-1996 were compiled using the ERPIMS Data Warehouse (VIEW). A total of 2350 measurements were obtained, and 70.1 percent of these measurements were below detection limits. The data were grouped six different ways for separate analyses of variance (ANOVA). The six ANOVA calculations were performed on the following temporal groups of EDB data: monthly, seasonally, three times a year, semiannually, annually and biannually. In brief, the ANOVA method was used to determine how well each temporal group captures variation in the EDB data. Other sources of variation are also present in these data, principally variation in EDB concentration related to location; the variation resulting from these factors is classified as "unexplained" in this analysis.

Figure G-8 presents the relationship between sampling interval and explained variance. Diamonds indicate a tested temporal group. When monthly sampling intervals are considered, the temporal factor explains 13.4 percent of the variation in the EDB data. The remainder of the variance in the EDB data is likely attributable to location, particularly whether or not the location is within the plume. It is noteworthy that, not surprisingly, explained variance decreases to 10.9 percent as the sampling time gap

increases from three to four months. However, a dramatic decrease in explained variance occurs when the sampling frequency is increased from three times yearly (9.9 percent) to semiannual measurements (5.3 percent). Further extending the time interval to annually and biannually results in continued decreases in explained variance to 3.3 percent and 2.6 percent, respectively. Monthly measurements capture more variance than the other temporal groups because a higher sampling frequency provides more detailed information on EDB trends.

This ANOVA procedure considers the entire FS-12 well network. Further evaluation could determine optimal sampling gaps for specific regions of the plume (e.g., hot spots and low-risk areas). It may be practical to use a longer sampling gap in regions where contaminants are low, whereas shorter sampling intervals may be warranted in areas where contamination concerns are prominent.

For the entire FS-12 well network, the ANOVA method indicates that monthly sampling captures the most temporal detail in overall FS-12 EDB data. Increasing the sampling interval to three or four months results in some loss in temporal detail, but a gap of six months or larger would miss much of the temporal detail in EDB data. However, detection of long-term trends is largely separate from knowledge of the temporal details of EDB concentration. For a given monitoring well, the EDB record may be considered to have two components: a short-term random component that varies over a time-scale of one to three months superimposed on a longer-term trend. Because system-performance monitoring focuses on longer-term trends, short-term variations are incidental in this context, serving only to obscure the evolution of the plume and the effects of the remedial system. A different tool (e.g., iterative thinning and Sen's method) is needed to assess the robustness of trends with respect to sampling interval and is the subject of the next section.

# 4.0 TEMPORAL OPTIMIZATION USING ITERATIVE THINNING

One approach that has been proposed for optimizing sampling frequencies at individual monitoring wells is the "iterative thinning" method. This method consists of: (1) estimating a trend (slope) and a slope confidence interval of specified statistical significance using the entire contaminant concentration time series; (2) thinning the time series by a percentage of the measurements; and then (3) re-estimating the trend to determine if the slope estimate is still within the confidence interval of the original slope estimate. The data thinning can continue until the thinned slope estimate falls outside the specified confidence interval of the original trend. At this point the time series of measurements can be said to be non-redundant and the thinned data frequency can be chosen as the optimal sampling frequency.

## 4.1 METHODOLOGY

The method chosen to estimate the slope is a nonparametric technique known as Sen's method (Gilbert 1987; some detail in Section 2.2.4 of this appendix). Sen's method is not greatly affected by gross data errors or outliers and can tolerate missing data or data collected at varying time intervals. The method can accommodate results with the same value (tied data results) and multiple data results from the same time period (tied periods). Sen's slope estimate involves picking the median of a ranked-list of pair-wise slope values, where each possible pair of data values is used to calculate a pair-wise slope. A computer program was written to calculate Sen's slope estimates (Gilbert 1987).

For the FS-12 EDB plume, eight monitoring wells were selected with time series of EDB concentration measurements over a long enough time span to make the analysis plausible. These wells were 90MW0003, 90MW0005, 90MW0020, 90MW0025, 90MW0027, 90MW0040, 90MW0050, and 90MW0053. The time series of EDB concentration measurements for each well are shown in Figure G-9. A result of zero was substituted for all nondetects because that is the expected background concentration of EDB. These monitoring wells had 17, 17, 26, 21, 18, 20, 24, and 21 measurements (concentration versus time data pairs), respectively, and each well had tied measurement results.

The first step in the slope estimate calculation is to transform the time series of sampling results into a series of measurements with a periodic time interval. For this study, a quarterly sampling frequency was chosen, and all the measurements were assigned to the appropriate quarter in the appropriate year. Each of the eight wells chosen had tied sampling periods. A monthly sampling period could have been chosen to eliminate ties, but would likely have produced similar conclusions. Ties reduced the number of possible pair-wise slope combinations because pair-wise slopes between measurements that have the same time period are not counted in Sen's method. Next, the pair-wise slopes were ranked in order of increasing magnitude. Finally, the median slope was chosen, either directly if the number of pair-wise slopes was odd or by interpolation if the number of pair-wise slopes was even.

After estimating the slope, a slope confidence interval was calculated using a procedure based on Sen's method, the Mann-Kendall test, and the normal distribution (Gilbert 1987). The procedure is valid for as few as 10 measurements unless there are many ties. A computer program calculated the Mann-Kendall statistic, S; its variance, VAR(S); and Sen's method coefficients $C_\alpha$, $M_1$, and $M_2$ (used for calculating one- and two-tailed confidence intervals). The coefficient $C_\alpha$ increases with increasing scatter and number of measurements, and also depends on the desired significance level (1 - a). The upper and lower limits of the desired confidence interval are the $M_1^{th}$ and $(M_2 + 1)^{th}$ largest values in the ranked pair-wise slope list.

The computer program also calculated the test statistic, Z, which was used along with S to determine if the measurements from a given well have non-zero slope with a statistical significance of 1 - a. If Z was less than the two-tailed $Z_{1-a/2}$ for the normal distribution, then the trend (either increasing or decreasing) could not be established within the specified level of confidence. Data series that had statistically significant slopes, either increasing or decreasing, were then compared with a one-tailed confidence interval ($Z_{1-a}$).

Some data series had an increasing trend followed by a decreasing trend, possibly due to the installation of the FS-12 groundwater extraction system. Monitoring wells 90MW0020, 90MW0025, 90MW0027, and 90MW0040 showed this condition. Because the two trends were obviously different, and the most recent trend is of interest for optimizing the current sampling frequency, these data sets were censored by ignoring the older data. However, the uncensored data sets also were run through the computer program and the results were compiled.

After the original slope and slope confidence intervals were calculated, the data sets were thinned. To do this, a column of random numbers between 0 and 1 was generated alongside the time-ordered concentration data. Then, increasing percentages of the data were iteratively removed from each time series by deleting the datum with the smallest random number. For example, with 20 percent thinning, the data series was divided into groups of five, and one out of every five data pairs was deleted.

The calculated slopes and lower and upper 90 percent and 95 percent confidence limits for the eight wells with sufficient measurements are shown in Tables G-1 through G-12 (data sets for four wells were calculated in both complete and censored forms). Also shown are the S and Z coefficients. A maximum of 80 percent thinning was used, with most wells only showing up to 75 percent thinning before the data became too sparse to be statistically meaningful. If the slope estimated for the thinned data fell outside the original confidence limits, the thinning was considered to have been excessive because it significantly changed the data trend by eliminating non-redundant as well as redundant observations. With less extensive thinning, some redundant data remained.

## 4.2 RESULTS

The results of the data thinning are summarized in Table G-13. Data thinning that resulted in a significant change to the original slope was tagged as "Fail," and data thinning that did not significantly change the original slope was tagged as "Pass." The results show that for both censored and uncensored data sets at both the 90 and 95 percent confidence levels on the slope estimate, there were no significant changes to data trends

until the 50 percent thinning level was reached. Well 90MW0005 shows a trend change at the 50 percent thinning level with 90 percent confidence in the slope estimate, which corresponds to semiannual sampling (based on the quarterly time period used in this analysis). When censored data sets are substituted when appropriate and 95 percent confidence levels on the slope are used, there are no significant changes to data trends until the 75 percent thinning level is reached. This corresponds to annual sampling.

## 4.3 CONCLUSION

This analysis suggests that a reduction in sampling frequency from quarterly to annually will still provide adequate sensitivity to correctly identify trends in EDB concentration within a given well in the FS-12 plume. This is based on using only the recent trends in the data (using censored data) from only eight wells. The analysis is not deterministic because of random selection of data pairs for deletion. Also, only a limited number of data pairs remained at the higher thinning percentages—five or fewer after 75 percent thinning for most wells. At this level, the estimated slope is significantly dependent on which data pairs were deleted and which were retained.

## 5.0 SPATIAL OPTIMIZATION USING KRIGING

The goal of spatial optimization is to identify those locations that contribute least to knowledge of the distribution of EDB in the FS-12 plume. This is accomplished using the same tool used to build the FS-12 plume shell for assessing system performance, i.e., ordinary kriging in three dimensions (see Appendix I). The procedure for developing a realistic plume shell includes the addition of synthetic data to fill in areas lacking physical observations, and the truncation of the kriged concentration field to the estimated lateral extent of contamination based on site-specific hydrology (Appendix C in AFCEE 1999).

The kriging procedure here for spatial optimization is simplified in order to focus on the physical observations and the changes in the plume shell that result from the elimination of the least informative data points. Synthetic data points are not used, and the kriged concentration field is not truncated. Thus, the spatial-optimization plume shells do not match the estimated lateral extent of contamination, and are smaller than and differ significantly from the realistic plume shell developed in the main body of this report. They do, however, clearly show the effects of spatial optimization.

### 5.1 METHODOLOGY

The procedure for identifying the least informative observations makes use of two parameters calculated for each observation during the course of kriging:

- Global kriging weight (GKW). For each cell in the 3-D interpolation grid influenced by a given observation, a weight is assigned to that observation. The GKW is the sum of the weights for a given observation for all influenced cells. Larger values of GKW correspond to more important observations.
- Number of cells influenced (nCell) – the number of cells in the 3-D interpolation grid whose concentrations are influenced by a given observation. Larger values of nCell correspond to more important observations.

A plot of GKW versus nCell for all observations graphically illustrates the relative importance of each observation. After choosing suitable thresholds for GKW and nCell,

the least important observations are removed from the data set. The remaining observations are re-kriged, and the new plume shell properties (volume, mass, and maximum concentration) are compared to the plume shell based on the full data set. Plots of the standard deviation of the kriging estimate before and after spatial optimization were used to assess qualitatively the effects of spatial optimization.

## 5.2 SOFTWARE

The kt3d module of the GSLIB geostatistical package (Deutsch and Journel 1997) was used as the basis for the spatial-optimization kriging. The GSLIB routines also form the core of the GMS (EMS-I 1999) geostatistical capabilities; GMS was used to krige the realistic plume shells for performance evaluation. GSLIB offers the advantage of open source code, which permits modifications and extensions to meet project-specific needs. For spatial optimization, kt3d was modified to sum the kriging weights and number of cells influenced for each observation and to report GKW and nCell in a separate output file. The code modifications were separate from the kriging subroutines, so there was no possibility of affecting the kriged results. Plots of the FS-12 spatial optimization plume shell with kt3d before and after modification were identical.

The calculated GKW and nCell parameters were validated by examining their reasonableness and by tracing the logic of program execution. Hand calculations are impractical due to the nature of the kriging algorithm. Further validation, if desired, could be performed on test data sets consisting of only two or three observations. This was not deemed necessary, however, because of the simplicity of the code modifications and the reasonableness of results.

## 5.3 KRIGING PARAMETERS

Kriging parameters used by the kt3d module of the GSLIB geostatistical package are listed in Table G-14. Although they differ in format and nomenclature, these are the same parameters that were used in GMS to interpolate the FS-12 plume shell for evaluation of the remedial systems. The similarity of GSLIB and GMS was verified

using the 32 samples in the core of the plume (discussed in the next section). The plume shells obtained with GSLIB and GMS were identical, except that GMS did not interpolate into the uppermost layer of the 3-D grid.

## 5.4 SAMPLING NETWORK

The sampling network used here for spatial optimization is a subset of all the groundwater EDB measurements available for FS-12 from May 1999 through May 2000, obtained from a query of the Jacobs Engineering Site Environmental Evaluation (SEE) database. These data pre-date the effort to delineate the EDB plumelets just west of the FS-12 plume. If a well was sampled more than once during this period, only the most recent datum was retained in the data set. In this query, 90MP0060C was a duplicate of 90MP0060B (coordinates, screen depths, and EDB values), so it was deleted. By their nature, drive point locations (location names beginning with 90DP) cannot be resampled, so were not included in the spatial optimization data set.

The spatial optimization data set consists of 135 groundwater locations (Table G-15). The spatial distribution of locations in the sampling network is illustrated in Figure G-10. Of these locations, 25 have location identifiers beginning with 90EW, indicating that they were originally intended for use as extraction wells. Five of these lie outside the estimated plume boundary, however, and one or more may currently be used as monitoring wells (90EW0006, 90EW0020, 90EW0021, 90EW0022, and 90EW0030). Extraction wells 90EW0001 through 90EW0005 were not sampled for EDB during the reporting period (May 1999 through May 2000), so are not considered here. Within the estimated plume boundary (both laterally and vertically), there are 20 extraction wells and 12 monitoring wells (Table G-15, identified in **boldface**). These 32 wells provide the physical basis for estimating the distribution of EDB within the FS-12 plume. The remaining 103 locations serve to delineate the extent of the plume, monitor potential breakthrough of EDB through the extraction fence at the leading edge of the plume, and warn of the migration of previously undetected contaminated water.

Active extraction wells may be geostatistically distinct from passive monitoring wells. Pumping at extraction wells creates capture zones that intercept a multitude of groundwater flow lines. Thus, extraction well samples represent averages of many flow paths. In contrast, monitoring wells samples represent single flow paths, giving concentrations at single points in the aquifer. Combining the two types of measurements on an equal footing in the spatial optimization data set is necessary because of the sparse data coverage in many parts of the plume. The extraction well samples represent more of the aquifer and could be weighted more heavily during kriging, but the magnitude of other uncertainties in the kriging process related to the general sparseness of data coverage and choice of kriging parameters suggest that this is a minor concern; therefore, this has not been pursued.

## 5.5 RESULTS

The baseline for spatial optimization is the plume shell calculated from all 135 sample locations in the neighborhood of the FS-12 plume (Figure G-11). In the absence of synthetic data, this plume shell does not completely fill the northeastern portion of the estimated plume outline. Elsewhere, the plume shell extends slightly beyond the estimated outline because of the kriging and search radii needed to provide a contiguous plume rather than a series of isolated hotspots. The plume shell extends hundreds of feet downgradient of the extraction fence at the southwestern edge of the plume shell because kriging does not take into account the hydrology of the fence, i.e., the extraction wells capture and cut off the downgradient migration of the plume.

The standard deviation of the kriging estimate for all locations is portrayed in Figure G-12. The core of the plume shows relatively low standard deviations, reflecting relatively consistent concentrations from one location to the next. Outside the plume where concentrations are less than 0.02 µg/L, standard deviations are much higher (Figure G-11). Although the magnitude of these observations is small, the relative variation is high, resulting in high relative uncertainty in the kriging estimates. Absolute uncertainty remains small, however. A second feature evident in Figure G-12 is that not all points are included in the kriging. To estimate the concentration at a given point (e.g.,

a cell), the kriging algorithm requires that two or more points be within the search radius around the point. If this is not the case, then no value or standard deviation is estimated.

The parameters used to identify the less informative locations, GKW and nCell, are tabulated in Table G-15, and nCell versus GKW for each location is plotted in Figure G-13. From this figure, a general linear relationship between nCell and GKW is apparent. The low end of this trend is anchored at the origin by the isolated locations that could not be kriged. These locations influence no cells and have a global kriging weight of zero. There is a continuum of locations that are progressively less isolated, exhibiting correlated increases in GKW and nCell. For spatial optimization, locations with GKW less than 100 and nCell less than 250 were excluded from the data set. This pared the data set by 49 locations, leaving 86. The spatial distribution of retained and excluded wells is illustrated in Figure G-14. From this figure and from Table G-15, one may see that only four locations with the plume core are excluded.

A second trend is also evident in Figure G-13, consisting of extraction wells in the core of the plume with nCell of approximately 400 but with variable GKW. This trend arises because the extraction wells are within close proximity to each other compared to the kriging search radius, and are all at approximately the same depth. GKW values are low because of overlapping zones of influence from many wells. This is strong evidence of spatial redundancy; if these were not extraction wells, they would have been selected for exclusion from the optimized data set.

The optimized plume shell is portrayed in Figure G-15. Visually, there is little difference between this plume shell and that calculated from the full data set in Figure G-11. The most significant difference is the absence of a spike in the 5 µg/L isosurface at the southern end of the core of the plume. This is caused by the exclusion of location 150 (90MW0040), where EDB was measured at 9.8 µg/L. Because of its high concentration, a critical well-by-well assessment of excluded locations would have flagged this well as one to be retained.

The standard deviation of the kriging estimate of the spatially optimized data set is shown in Figure G-16. There is little difference in distribution between the spatially optimized data set and the full data set illustrated in Figure G-12. It appears that plots of standard deviation (the square root of the variance) of the kriging estimate are not a useful discriminator for evaluating spatial redundancy.

The effect of spatial optimization on plume shell volume, mass, and maximum concentration is summarized in Table G-16. The spatially optimized plume shell is about 10 percent smaller in volume, except at the highest concentration (greater than 5 µg/L) where it is only 5 percent smaller. The total mass of EDB is 11 percent smaller, but the maximum EDB concentration is 3 percent larger. The decline in total plume volume (EDB greater than 0.02 µg/L) is the result of excluding those few points around the periphery of the plume with concentrations exceeding the detection limit (EDB greater than 0 µg/L in Table G-15). This decline is not significant because the lateral extent of the plume for performance assessment is truncated to the plume outline rather than being controlled by kriging. The decline in total mass and in the plume volume exceeding 5 µg/L is mostly attributable to the exclusion of 90MW0040 (ID 150), as mentioned above in the discussion of Figure G-15.

## 5.6 CONCLUSIONS

Spatial optimization based on analysis of global kriging weights and the number of cells influenced is a powerful tool for the identification of spatial redundancy. With respect to the data needed to realistically krige the FS-12 plume for performance assessment, the existing sampling network could be trimmed by 36 percent with negligible effect on the estimated distribution of EDB. The wells identified for exclusion need to be reviewed individually, however. Some wells may need to be retained because they serve as sentry wells, because they fulfill regulatory and stakeholder requirements, or because they are comparatively isolated yet have high contaminant concentrations.

## 6.0 SPATIAL REDUNDANCY USING PARTICLE TRACKING

Three-dimensional particle tracking provides a means of assessing whether a parcel of groundwater is being sampled by multiple wells along its flowpath. For example, two wells connected by a flowpath will sample the same water but with measurements at the downgradient well delayed by the travel time between the two wells. Thus, samples from such wells are spatially redundant once travel times are accounted for, and provide little new information about the distribution of a contaminant within the plume. For plume characterization at MMR, the 3-D distribution of data points is always sparse relative to the scale of heterogeneity within a plume, so the most effective use of funding is to sample wells that are as independent of each other as possible.

### 6.1 METHODOLOGY

Particle tracks were evaluated for two steady-state flow fields calculated using the FS-12 zoom model (see Appendix F): ambient (pre-operational) conditions and average operational conditions. For each monitoring well in Table G-15, five particles were seeded at the mid-screen depth with a radius of 10 feet from the well. The resulting particle set was then tracked forward for three years in both flow fields. If a particle track passed within approximately 30 feet of a downgradient monitoring well in plan view, its elevation was compared to the well midscreen elevation. If the two were within 10 feet, the downgradient well was considered to be spatially redundant with the upgradient well from which the particles were tracked. The temporal interval between the two wells was estimated visually from progress along the three-year particle track.

### 6.2 RESULTS

Of the 135 locations used for spatial optimization via kriging, 60 were used to examine redundancy via particle tracking. The resulting particle tracks are shown in Figure G-17 under ambient conditions and in Figure G-18 under average operating conditions. Results are summarized in column five of Table G-17. Only a few wells downgradient of the extraction/reinjection fences southeast of the toe of the plume appear to be spatially redundant under ambient conditions. For example, tracks from the three-well cluster

composed of 90MW0066, 90MW0066A, and 90MW0083 reach 90JB0001B,C,D after nearly three years. However, under average operational conditions, none of the wells appear to be spatially redundant. The tracks from the upgradient three-well cluster now pass 65 feet to the northeast of the downgradient 90JB0001B,C,D.

# 7.0 SUMMARY AND CONCLUSIONS

The recommendations for the FS-12 sampling network based on the findings of the temporal and spatial optimization approaches discussed in the previous sections are as follows:

- For measurement of concentration trends versus time, the frequency of sampling in all monitoring wells can be reduced from quarterly to annually without significant loss of sensitivity. Some wells may still need to be sampled more frequently for other reasons (e.g., breakthrough monitoring, sentry wells, or stakeholder concerns).
- The number of wells needed for spatial characterization of the FS-12 plume can be reduced from 108 as enumerated in the FS-12 Quarterly SPEIM Report, July – September 2000 (AFCEE 2001) to 70 as determined primarily on the basis of global kriging weights, without loss of confidence regarding the three-dimensional distribution of EDB in the FS-12 plume.

Analysis of temporal variability by ANOVA suggests that EDB measurements exhibit significant short-term variability over a period of one to three months. This variability largely disappeared when a six-month or longer interval was used. This illustrates the time scale of variability, but does not indicate what happens to the ability to determine trends as the sampling interval is lengthened. Temporal optimization by iterative thinning answers this question directly, revealing that a sampling interval of one year is sufficient to identify and quantitate the trend in concentration versus time at a monitoring well. Because of the short-term variability of the data, however, several measurement cycles are needed to establish trends with a reasonable level of confidence. Thus, with annual sampling, several years instead of several quarters may be needed to conclusively identify trends at a specific monitoring well.

Spatial optimization by kriging (making use of the global kriging weight and the number of cells influenced in the kriging grid for each measurement) provides a quantitative method for selecting the wells in a sampling network that are least essential for plume characterization. The thresholds used here for GKW and nCells resulted in reducing the number of monitoring locations by 35 percent while changing the plume mass and volume by only about 10 percent. This change is negligible given the uncertainties in

contaminant distribution in parts of the plume that are poorly bounded by the sampling network and require the use of synthetic ("dummy") data points to produce a hydrologically reasonable plume geometry.

Particle tracking forward three years from a subset of 60 monitoring locations in the FS-12 sampling network, suggests that sampling redundancy along flow lines is low under ambient conditions and nearly zero under average operating conditions. Particle tracking from the full set of FS-12 monitoring locations would likely identify no more than a few redundant locations, but should be included in spatial optimization studies for completeness.

Recommendations for spatial optimization of the FS-12 sampling network are summarized in Table G-17. Of the 135 locations sampled for EDB between May 1999 and May 2000, only 108 have been selected for ongoing EDB monitoring under the SPEIM program. Spatial optimization suggests that 28 of these contribute little knowledge of the plume, but that 17 of the 27 non-SPEIM locations might be useful contributors (Table G-17).

# 8.0 REFERENCES

AFCEE (Air Force Center for Environmental Excellence). 2001 (February). *Fuel Spill-12 Quarterly System Performance and Ecological Impact Monitoring Report, July – September 2000*. AFC-J23-35U40503-M30-0003. Prepared by Jacobs Engineering Group Inc. for AFCEE/MMR Installation Restoration Program, Otis ANGB, MA.

———. 1999. *Final Southwest Operable Unit Feasibility Study*. AFC-J23-35Q86101-M16-0006. Prepared by Jacobs Engineering Group Inc. for AFCEE/MMR Installation Restoration Program, Otis ANGB, MA.

Cameron, K. 1999. *Optimization of LTM Networks: A Statistical Approach*. MacStat Consulting, Ltd., Colorado Springs, CO. Microsoft PowerPoint presentation.

Cameron, K. and P. Hunter. 1999. *Optimization of LTM Networks: Statistical Approaches to Spatial and Temporal Redundancy*. Position paper for the Air Force Center for Environmental Excellence.

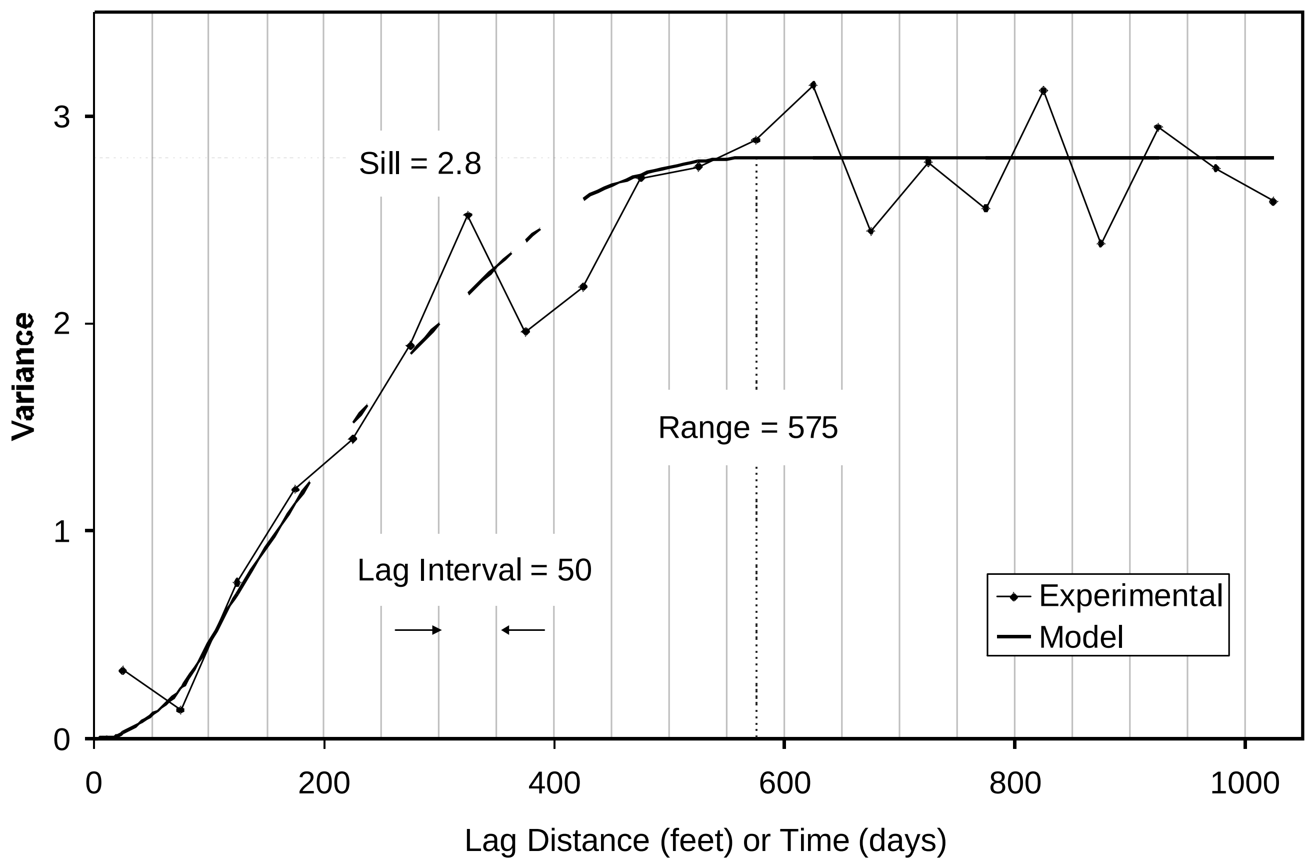
Deutsch, C.V. and A.G. Journel. 1998. *GSLIB Geostatistical Software Library and User's Guide*. New York: Oxford University Press. 369 p. and 1 CD-ROM.

EMS-I. 1999. *GMS Department of Defense Groundwater Modeling System, Version 2.1*. (Environmental Modeling Systems, Inc.) Provo, UT. www.ems-i.com.

Gilbert, R.O. 1987. *Statistical Methods for Environmental Pollution Monitoring*. New York: Van Nostrand Reinhold.

# APPENDIX G

# Figures




JACOBSENGINEERING

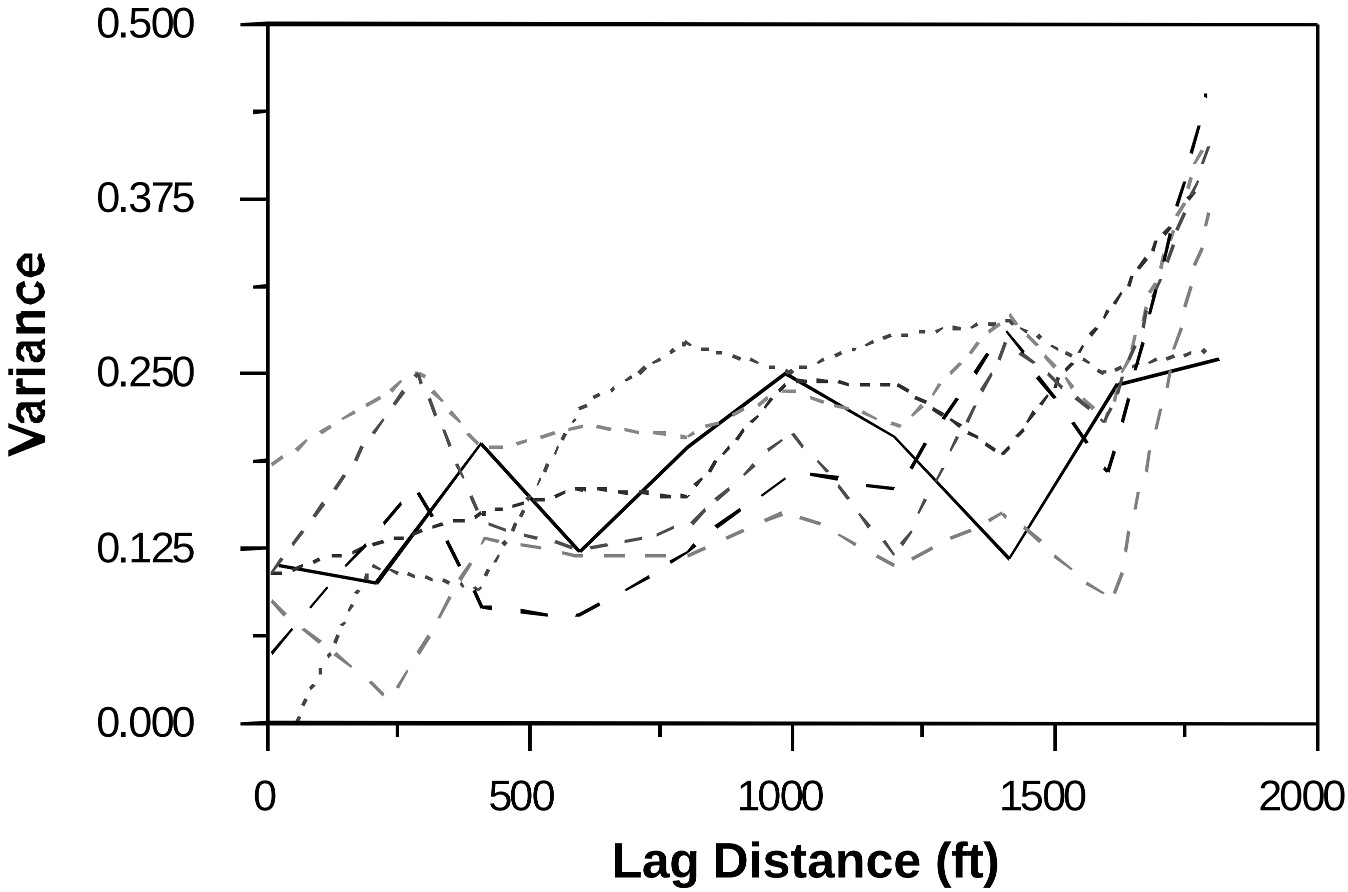
Experimental and Model
One-Dimensional Variograms

MassachusettsMilitaryReservation
CapeCod,Massachusetts

5/11/01 DB FS12-An00-Sp_38.cdr

Figure G-1

L:\04Reports\FS-12\FS12-An00-SpCorel\FS12-An00-Sp_38.cdr




Legend

Q1 Q3 Q5 Q7
Q2 Q4 Q6

EDB=EthyleneDibromide

Notes

1. ModifiedfromCameron (1999).

JACOBSENGINEERING

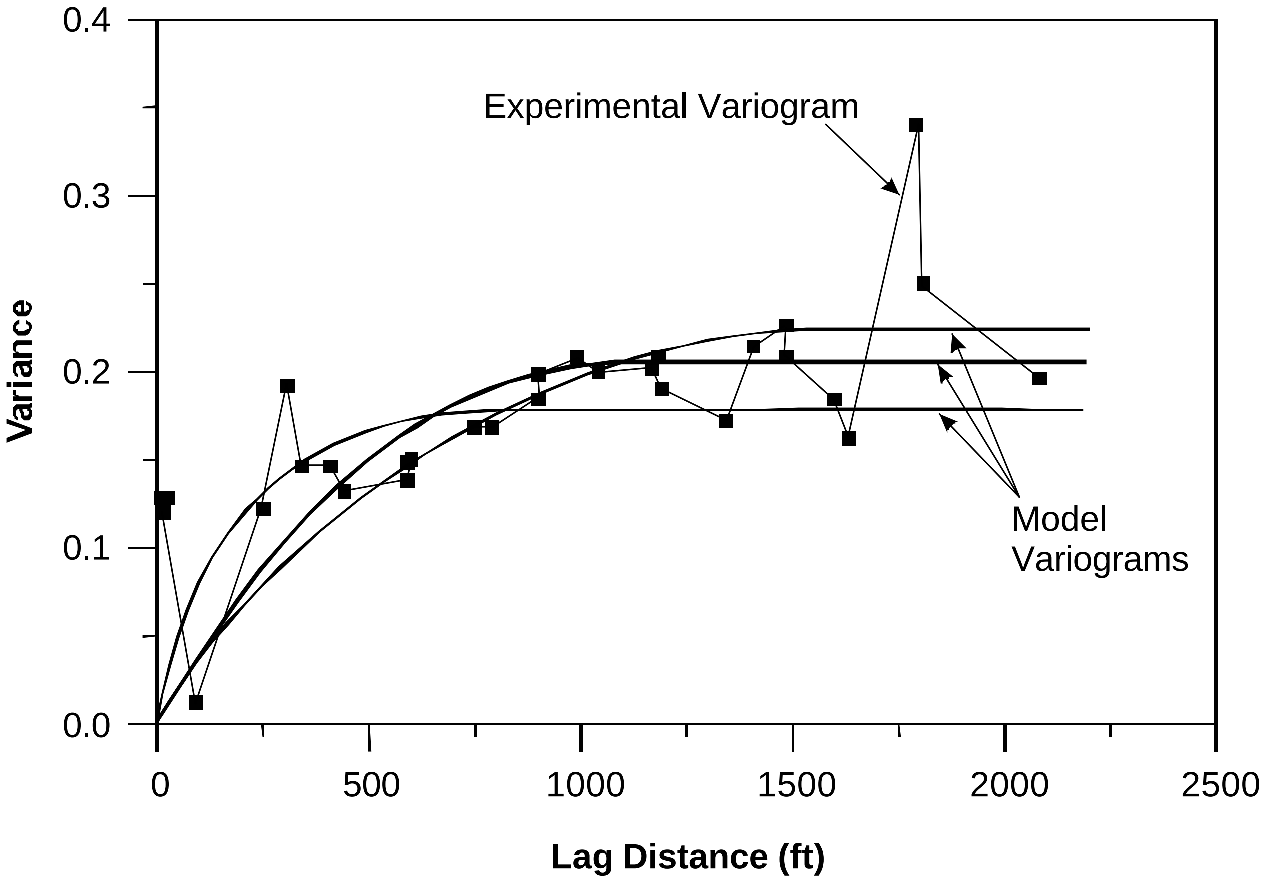
Spatial Variograms
for EDB at FS-12

MassachusettsMilitaryReservation
CapeCod,Massachusetts

5/11/01 DB FS12-An00-Sp_45.cdr

Figure G-2

L:\04Reports\FS-12\FS12-An00-SpVC or all\FS12-An00-Sp_45.cdr




Notes

1. ModifiedfromCameron (1999).

EDB=EthyleneDibromide

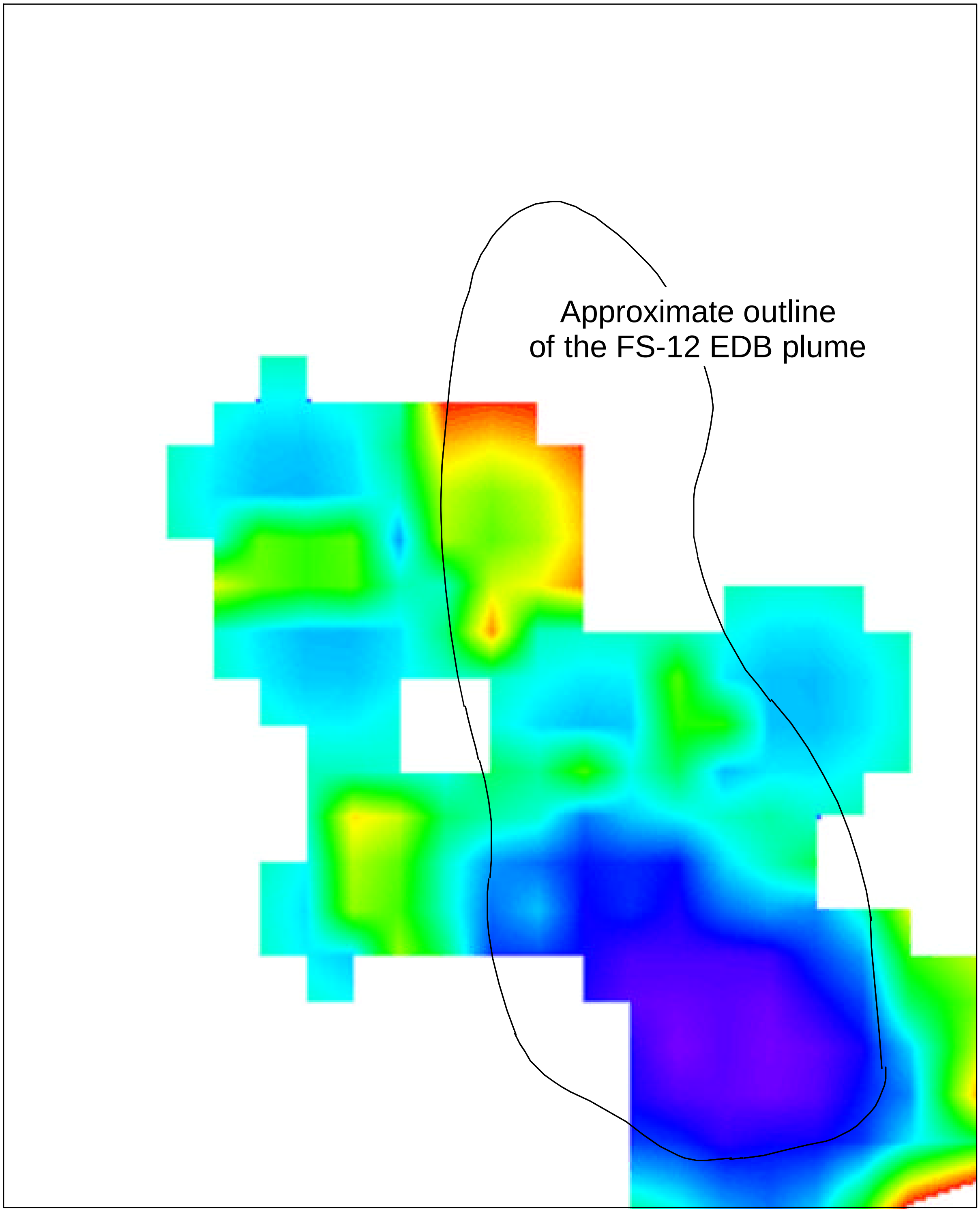
JACOBSENGINEERING

Time-Averaged Spatial Variogram for EDB at FS-12

MassachusettsMilitaryReservation
CapeCod,Massachusetts

5/11/01 DB FS12-An00-Sp_33.cdr

Figure G-3




Variance

0 0.375

N

0 1000

ApproximateScaleinFeet

Notes

1. From Cameron (1999).

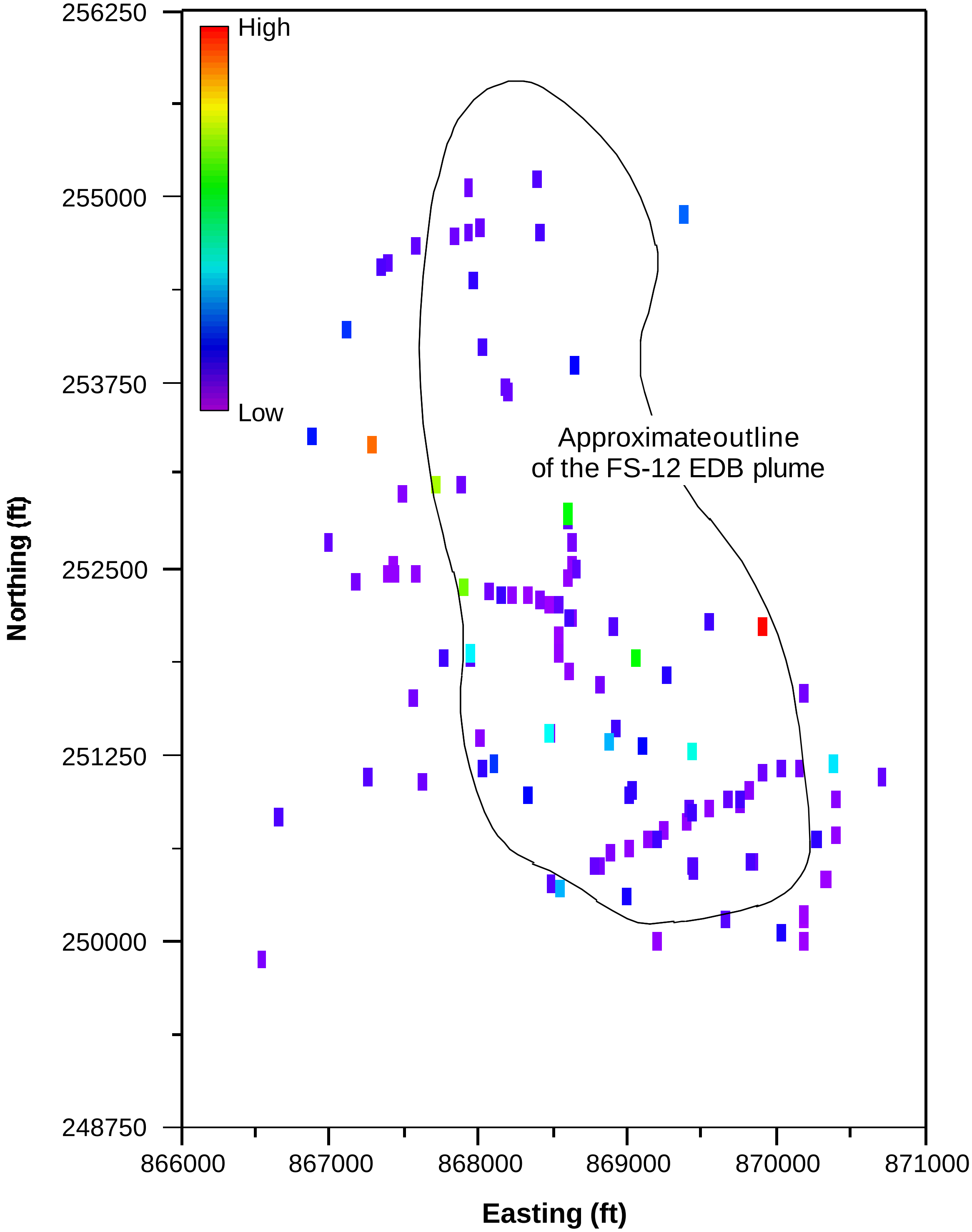
JACOBSENGINEERING

Kriging Variance Map
for EDB at FS-12

MassachusettsMilitaryReservation
CapeCod,Massachusetts

3/14/01dwEDBKrigVarMap.cdr

Figure G-4




Notes

1. FromCameron(1999).

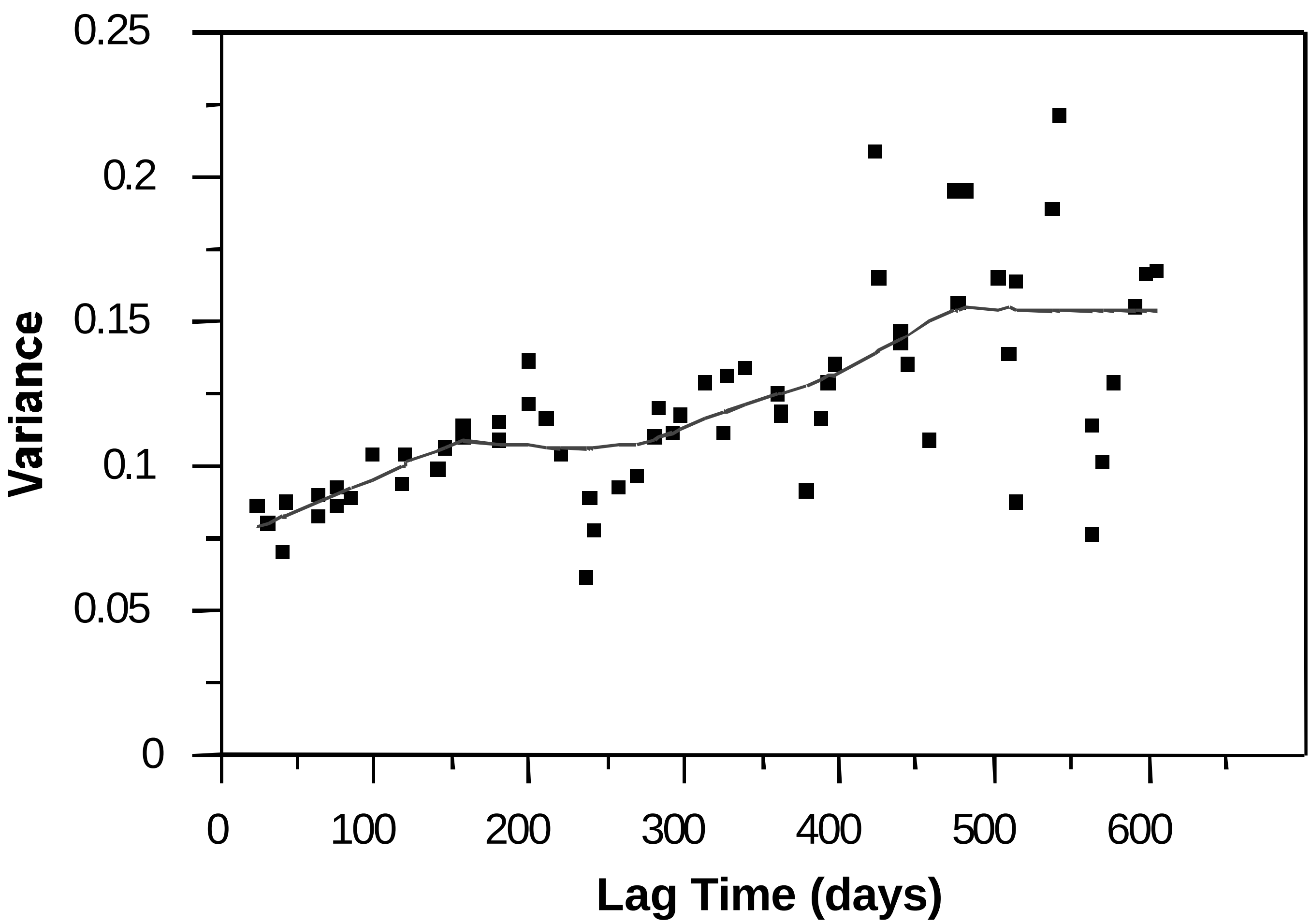
JACOBSENGINEERING

GlobalKriging Weights
atFS-12 for EDB

MassachusettsMilitaryReservation
CapeCod,Massachusetts

3/14/01dwEDBGblKriglVar.cdr

Figure G-5




Notes

1. Modified from Cameron (1999).

EDB=Ethylene Dibromide

JACOBS ENGINEERING

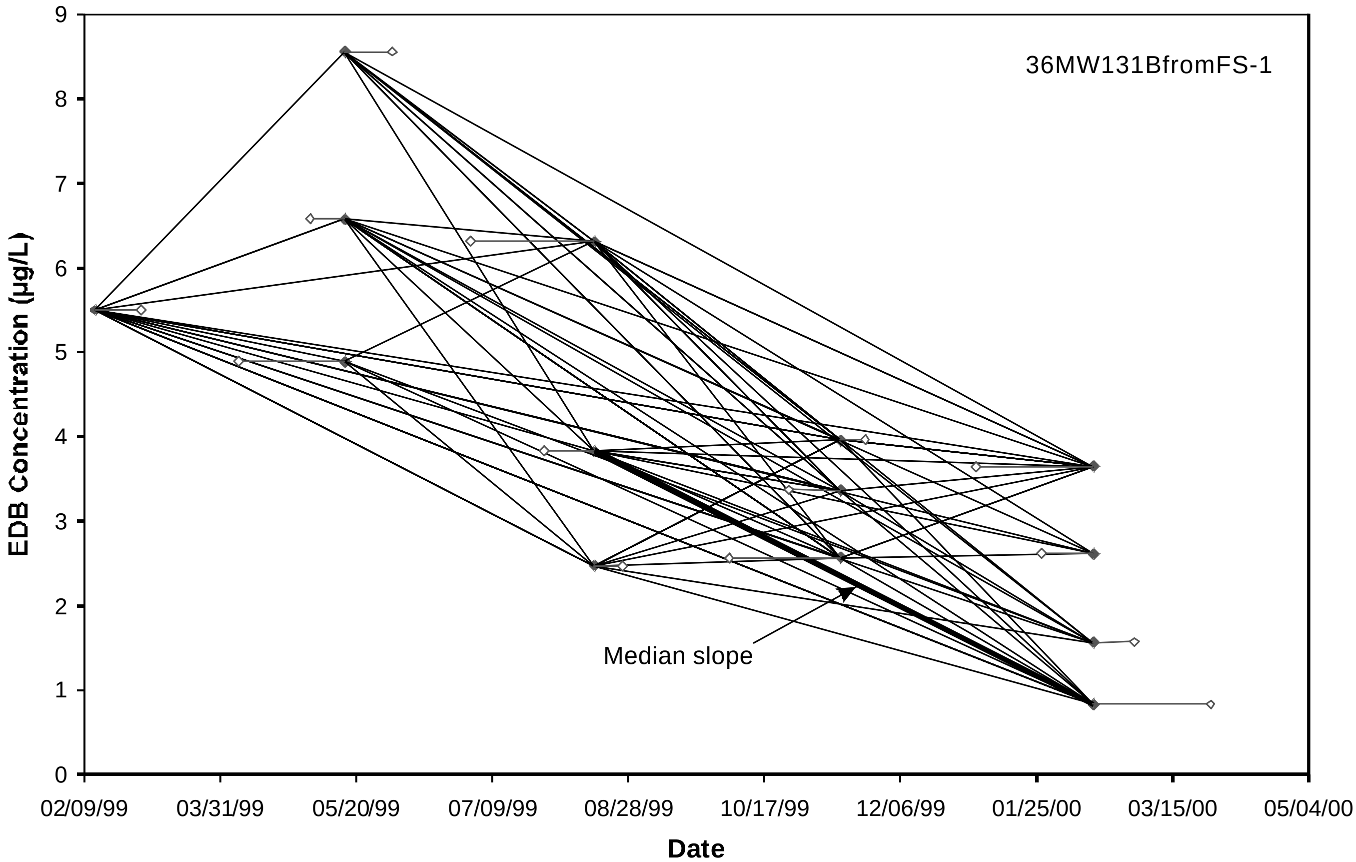
Temporal Variogram
for EDB at FS-12

Massachusetts Military Reservation
Cape Cod, Massachusetts

5/11/01 DB FS12-An00-Sp_36.cdr

Figure G-6

L:\04Reports\FS-12\FS12-An00-SpCoral\FS12-An00-Sp_36.cdr




Legend

Observed value(opensymbol) andvalueadjusted tothenearestquarter(closedsymbol)

Sen's pair-wise slopes

EDB=EthyleneDibromide
µg/L=Microgramsper Liter

JACOBSENGINEERING

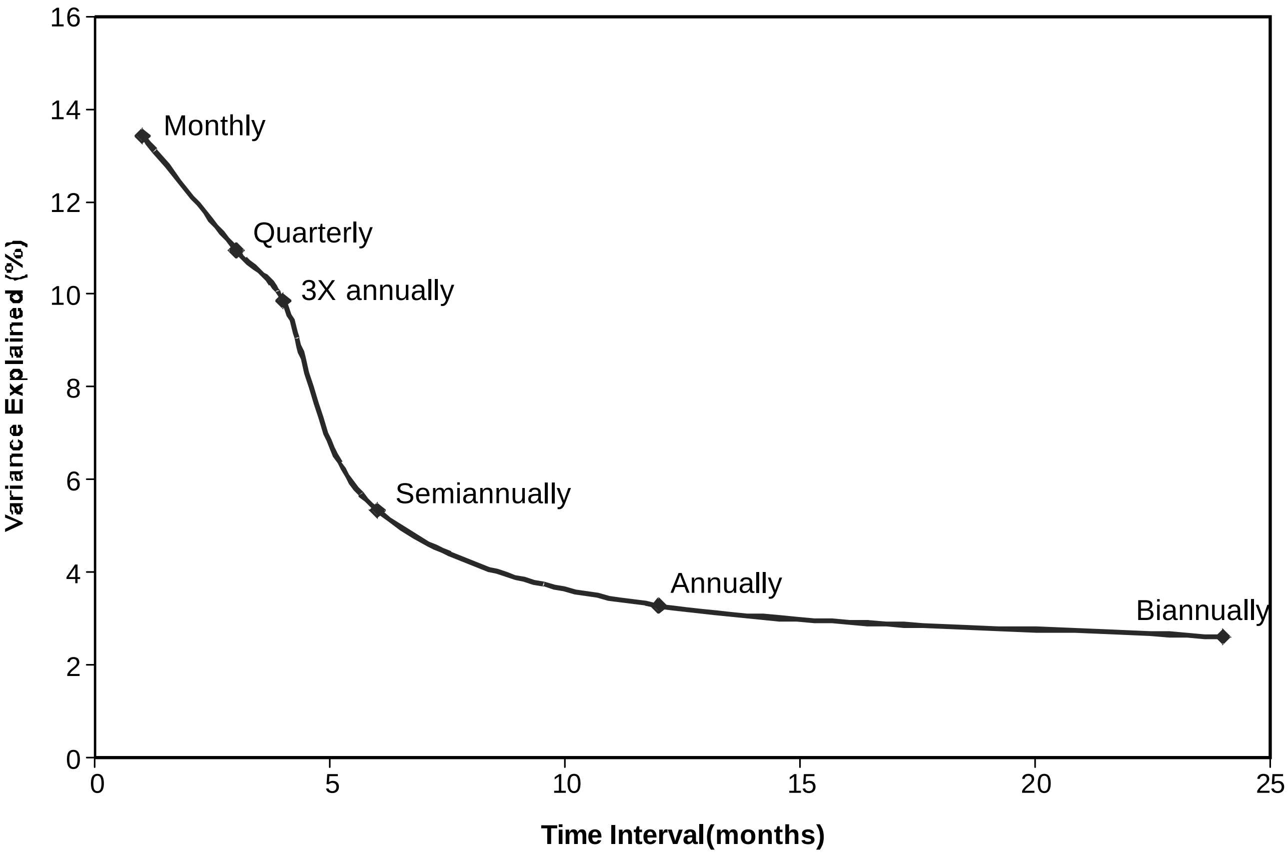
Sen's Method for Slope Calculation

MassachusettsMilitaryReservation
CapeCod,Massachusetts

5/11/01 DB FS12-An00-Sp_44.cdr

Figure G-7

L:\04Reports\FS-12\FS12-An00-Sp\CorelINFS12-An00-Sp_44.cdr




L:\04Reports\FS-12\FS12-An00-SpCorel\FS12-An00-Sp_30.cdr

Legend

EDB=EthyleneDibromide

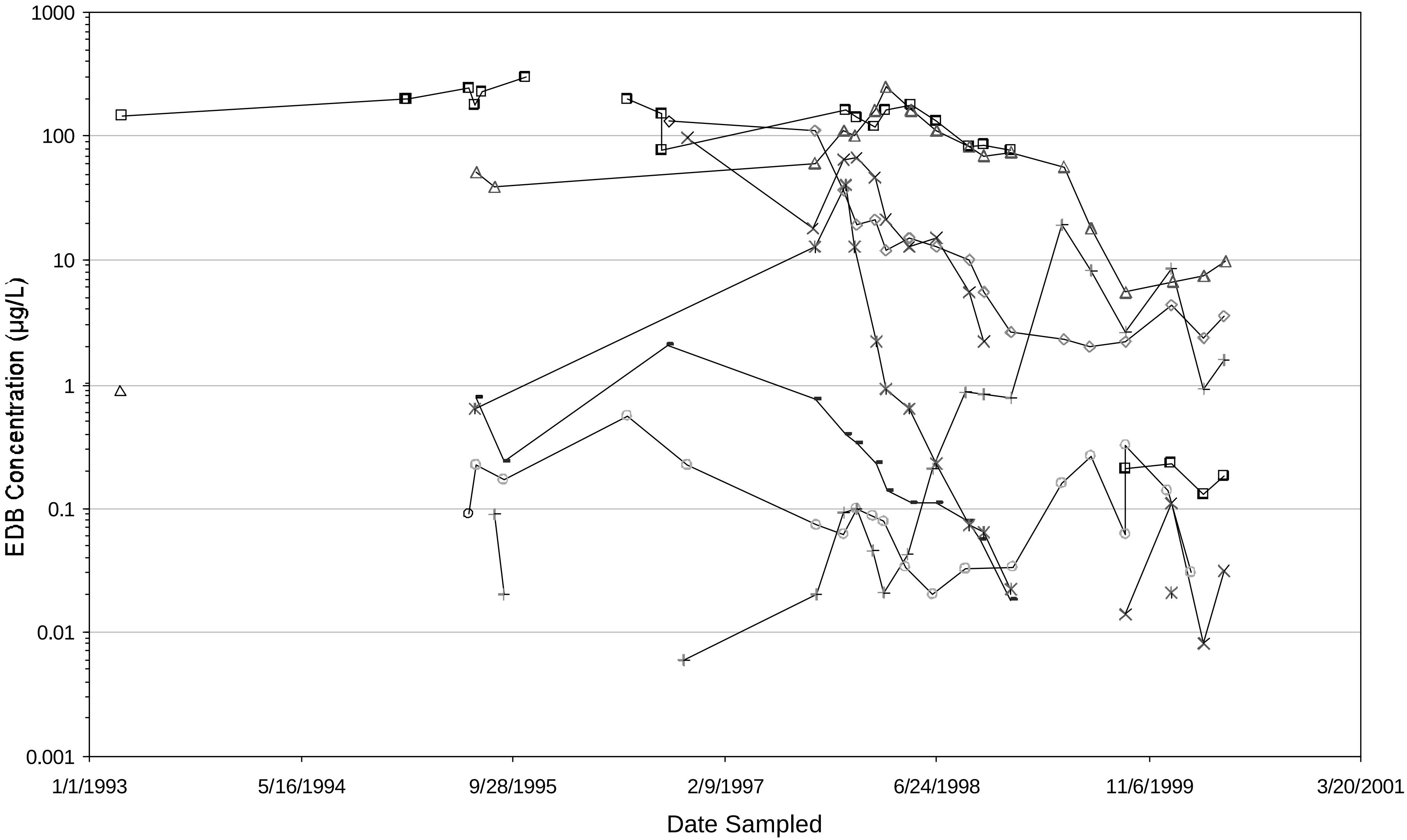
JACOBSENGINEERING

Variance Versus Sampling Interval for EDB inthe FS-12 Plume

MassachusettsMilitaryReservation
CapeCod,Massachusetts

5/11/01 DB FS12-An00-Sp_30.cdr

Figure G-8




Legend

- 90MW0003
- 90MW0005
- 90MW0020
- 90MW0025
- 90MW0027
- 90MW0040
- 90MW0050
- 90MW0053

EDB=EthyleneDibromide
µg/L=MicrogramsperLiter

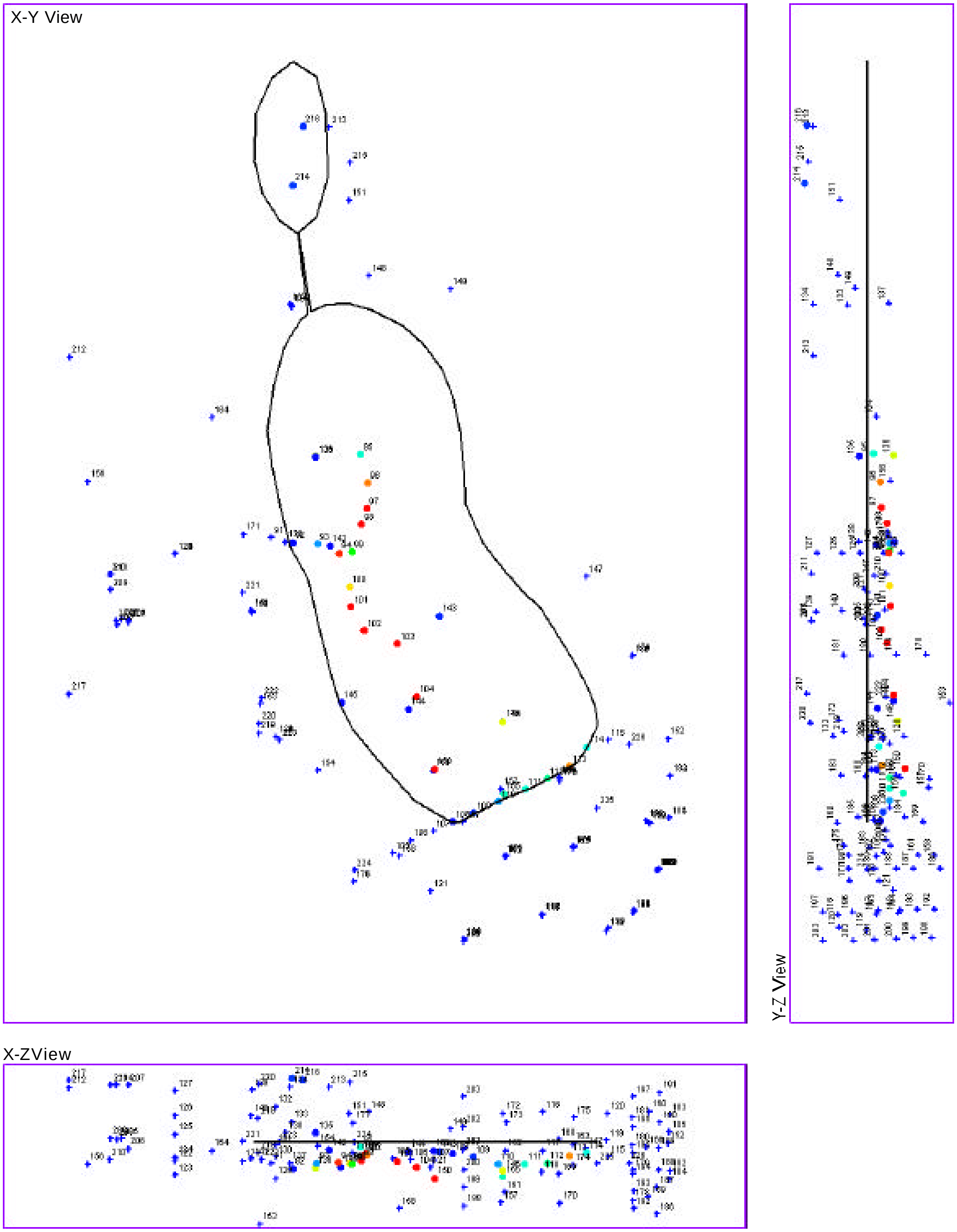
JACOBSENGINEERING

**EDB Versus Time in FS-12 Plume Monitoring Wells**

MassachusettsMilitaryReservation
CapeCod,Massachusetts

5/11/01 DB FS12-An00-Sp_37.cdr | Figure G-9

L:\04Reports\FS-12\FS12-An00-Sp\Corel\FS12-An00-Sp_37.cdr




## Legend

DataSource:JacobsEngineeringGroupInc.,28June2000,SiteEnvironmentalEvaluation(SEE)Database

- 137 Samplinglocationoutsidetheplume
- 150 Samplinglocationwithintheplume

(numbersrefertotheIDcolumnintheresultstable)

EthyleneDibromide(µg/L)

0 1 2 3 4 5

N

0 1000

Scale in Feet

VerticalExaggeration in SideViews=5x

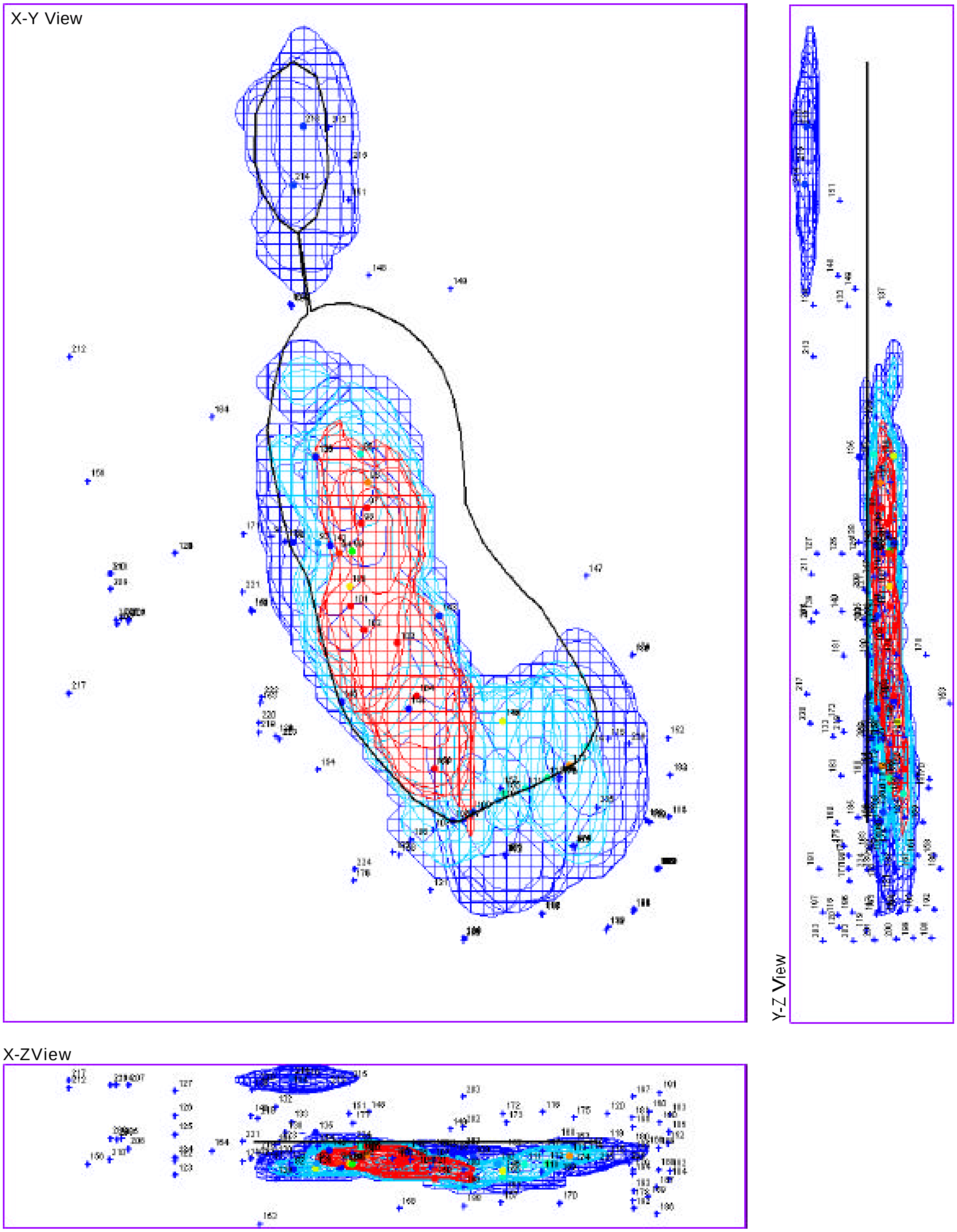
JACOBSENGINEERING

# FS-12 Monitoring and Extraction Wells Used for Spatial Optimization

MassachusettsMilitaryReservation
CapeCod,Massachusetts

5/11/01 DB FS12-An00-Sp_31.cdr

FigureG-10




Legend

DataSource:JacobsEngineeringGroupInc.,28June2000,SiteEnvironmentalEvaluation(SEE)Database

+ 137 Samplinglocationoutsidetheplume

● 150 Samplinglocationwithintheplume

(numbersrefertotheIDcolumnintheresultstable)

EthyleneDibromide(µg/L)

0 1 2 3 4 5

Isosurfacescontouredat0.02,1,and5µg/L

N

0 1000

Scale in Feet

VerticalExaggeration in SideViews=5x

JACOBSENGINEERING

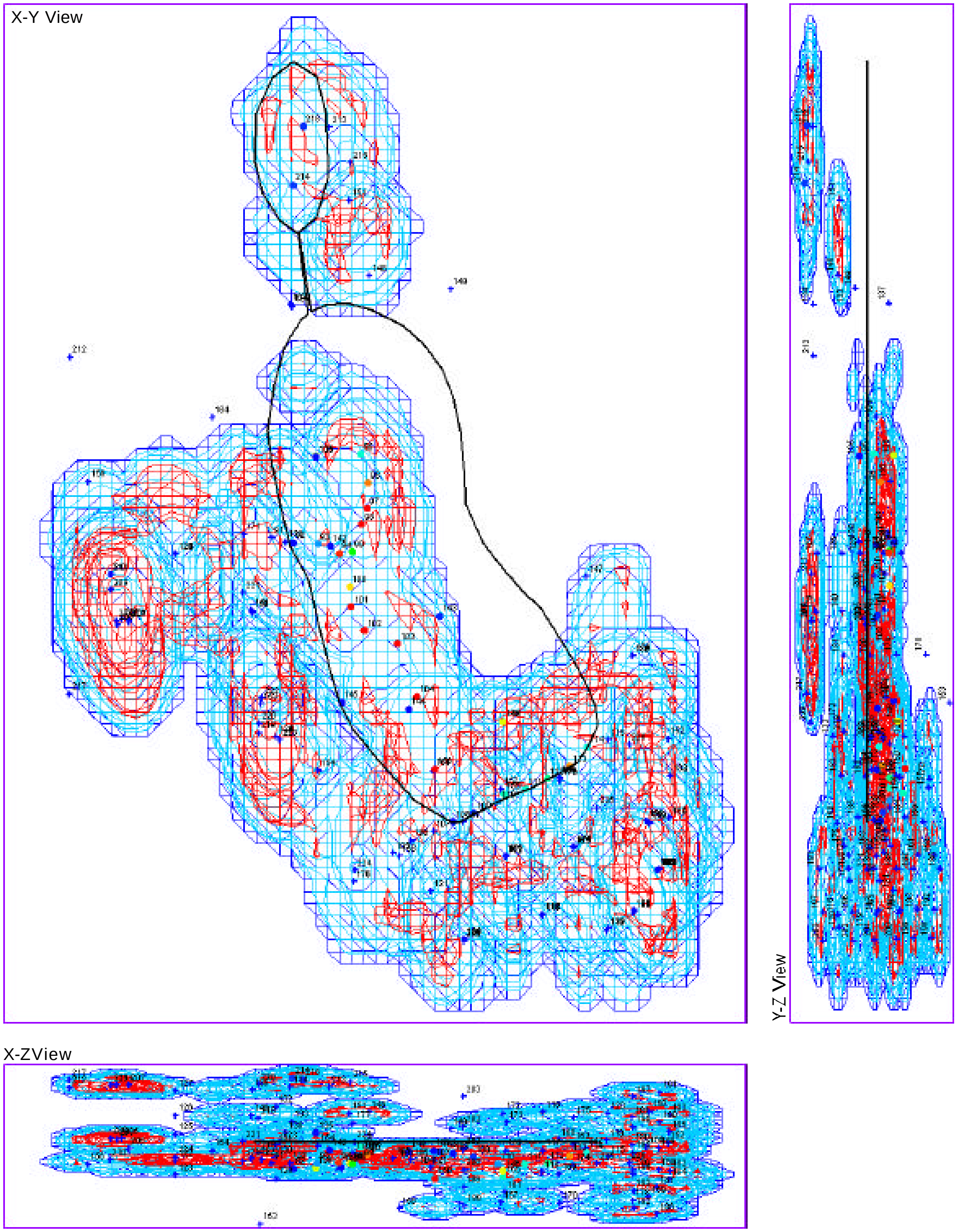
# FS-12 Plume Shell Calculated Using AllData

MassachusettsMilitaryReservation
CapeCod,Massachusetts

5/11/01 DB FS12-An00-Sp_40.cdr

Figure G-11

L:\04Reports\FS-12\FS12-An00-SpC oral\FS12-An00-Sp_40.cdr




**Legend**

DataSource:JacobsEngineeringGroupInc.,28June2000,SiteEnvironmentalEvaluation(SEE)Database

137 Samplinglocationoutsidetheplume

150 Samplinglocationwithintheplume

(numbersrefertotheIDcolumnintheresultstable)

EthyleneDibromide(µg/L)

0 1 2 3 4 5

Isosurfacescontouredat0.02,1,and5µg/L

N

0 1000

Scale in Feet

VerticalExaggeration in SideViews=5x

JACOBSENGINEERING

# Kriging Standard Deviation Calculated Using AllData

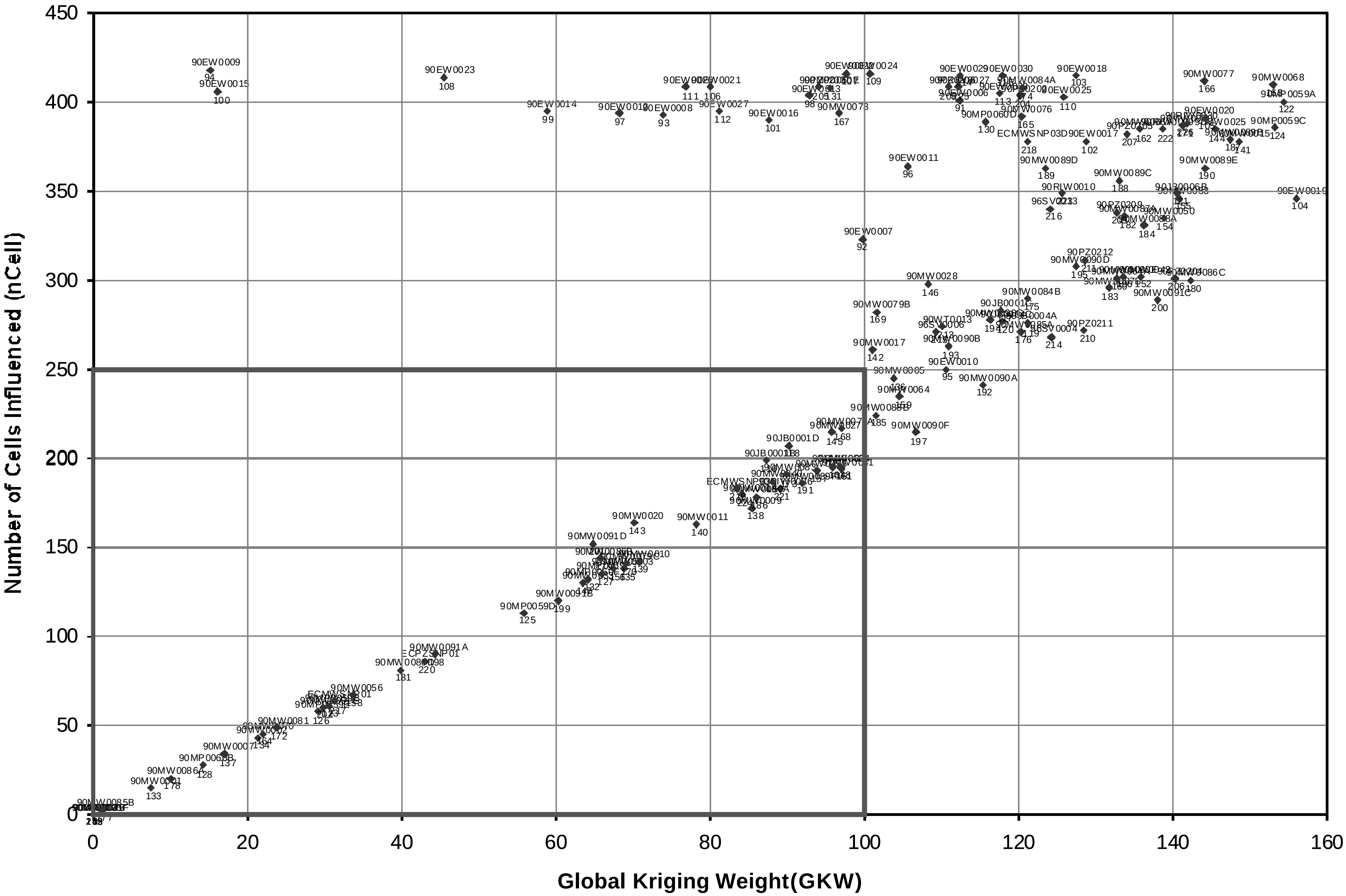
MassachusettsMilitaryReservation

CapeCod,Massachusetts

5/11/01 DB FS12-An00-Sp_42.cdr

FigureG-12

L:\04Reports\FS-12\FS12-An00-SpCoral\FS12-An00-Sp_42.cdr




## Legend

90MW0001
133
Monitoringor extractionwelllabeledwithlocationname (above)andID(below,fromtheresultstable)

Locations to beexcludedfromfuturesamplingbasedonkrigingresults

JACOBSENGINEERING

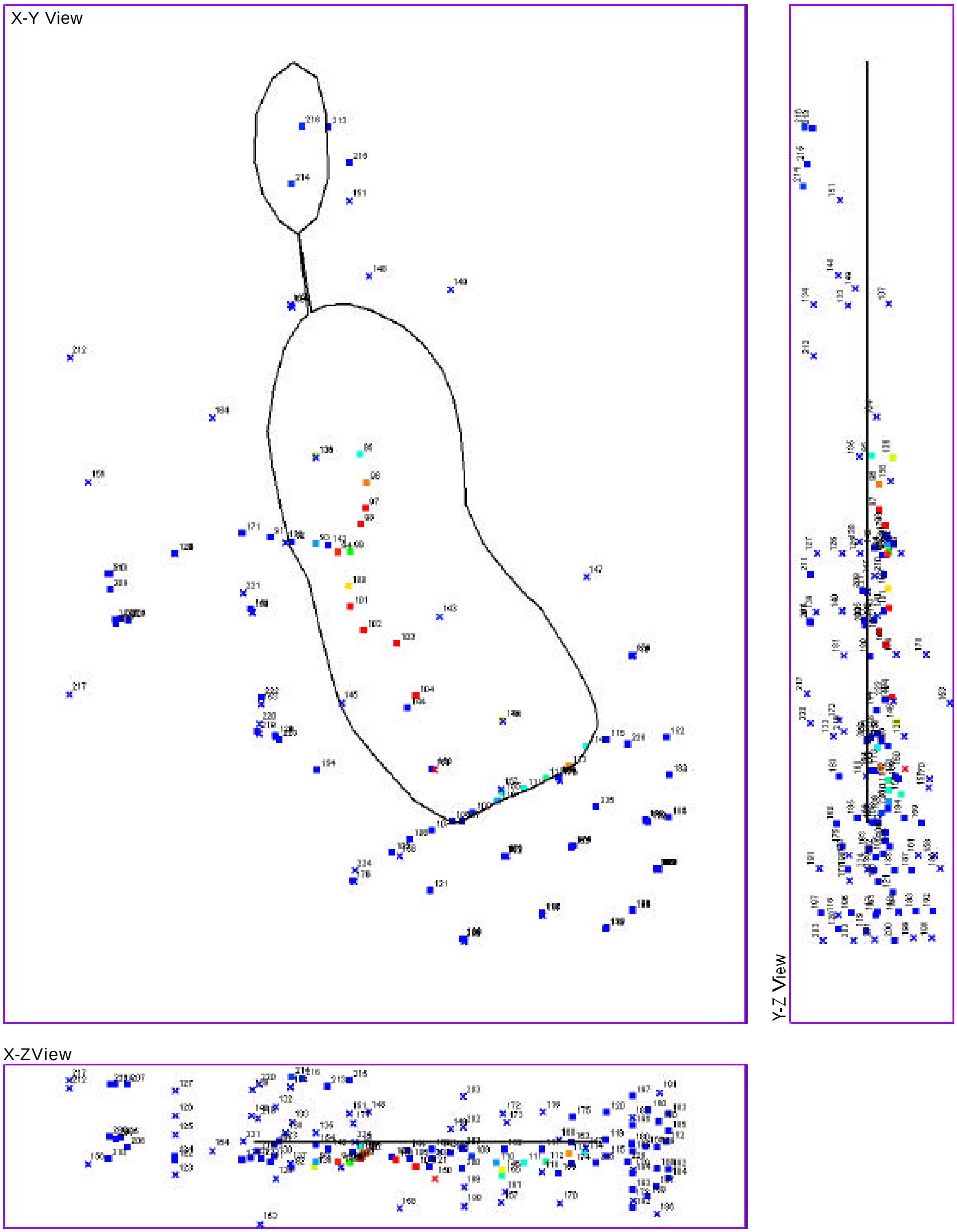
**Global Kriging Weights and Number of Cells Influenced for All Data**

MassachusettsMilitaryReservation
CapeCod,Massachusetts

5/11/01 DB FS12-An00-Sp_39.cdr

FigureG-13

L:\04Reports\FS-12\FS12-An00-Sp\Corel\FS12-An00-Sp_39.cdr




## Legend

DataSource:JacobsEngineeringGroupInc.,28June2000,SiteEnvironmentalEvaluation(SEE)Database

- 175 Samplinglocationretainedbyspatialoptimization
- 159 Samplinglocationexcludedbyspatialoptimization

(numbersrefertotheIDcolumnintheresultstable)

EthyleneDibromide(µg/L)

0 1 2 3 4 5

N

0 1000

Scale in Feet

VerticalExaggeration in SideViews=5x

JACOBSENGINEERING

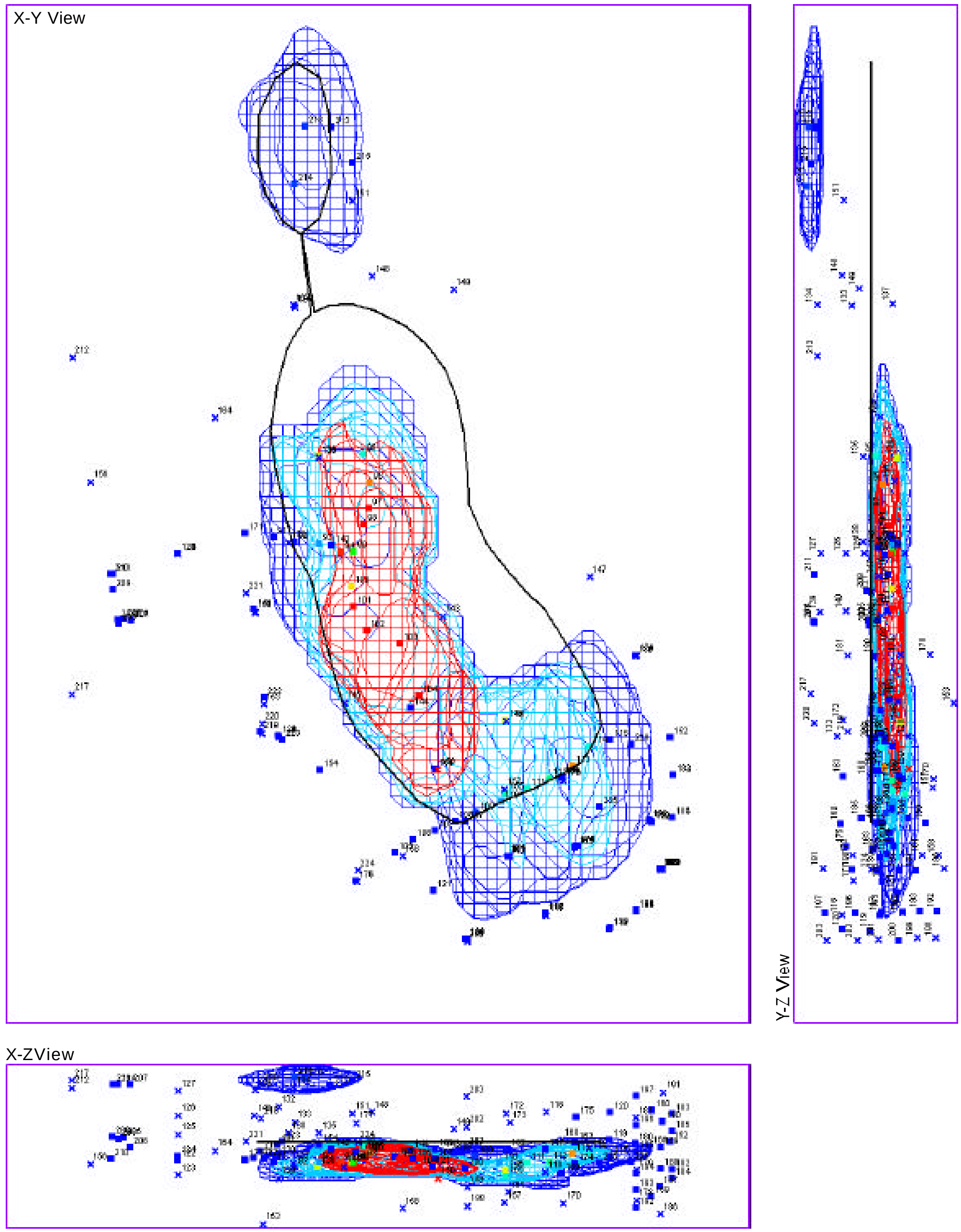
# Retained and Excluded Wells Based on Spatial Optimization

MassachusettsMilitaryReservation
CapeCod,Massachusetts

5/11/01 DB FS12-An00-Sp_32.cdr

Figure G-14

L:\04Reports\FS-12\FS12-An00-SpC oral\FS12-An00-Sp_32.cdr




## Legend

DataSource:JacobsEngineeringGroupInc.,28June2000,SiteEnvironmentalEvaluation(SEE)Database

175 Samplinglocationretainedbyspatialoptimization

159 Samplinglocationexcludedbyspatialoptimization

(numbersrefertotheIDcolumnintheresultstable)

EthyleneDibromide(µg/L)

0 1 2 3 4 5

Isosurfacescontouredat0.02,1,and5µg/L

N

0 1000

Scale in Feet

VerticalExaggeration in SideViews=5x

JE JACOBSENGINEERING

# FS-12 Plume Shell Following Spatial Optimization

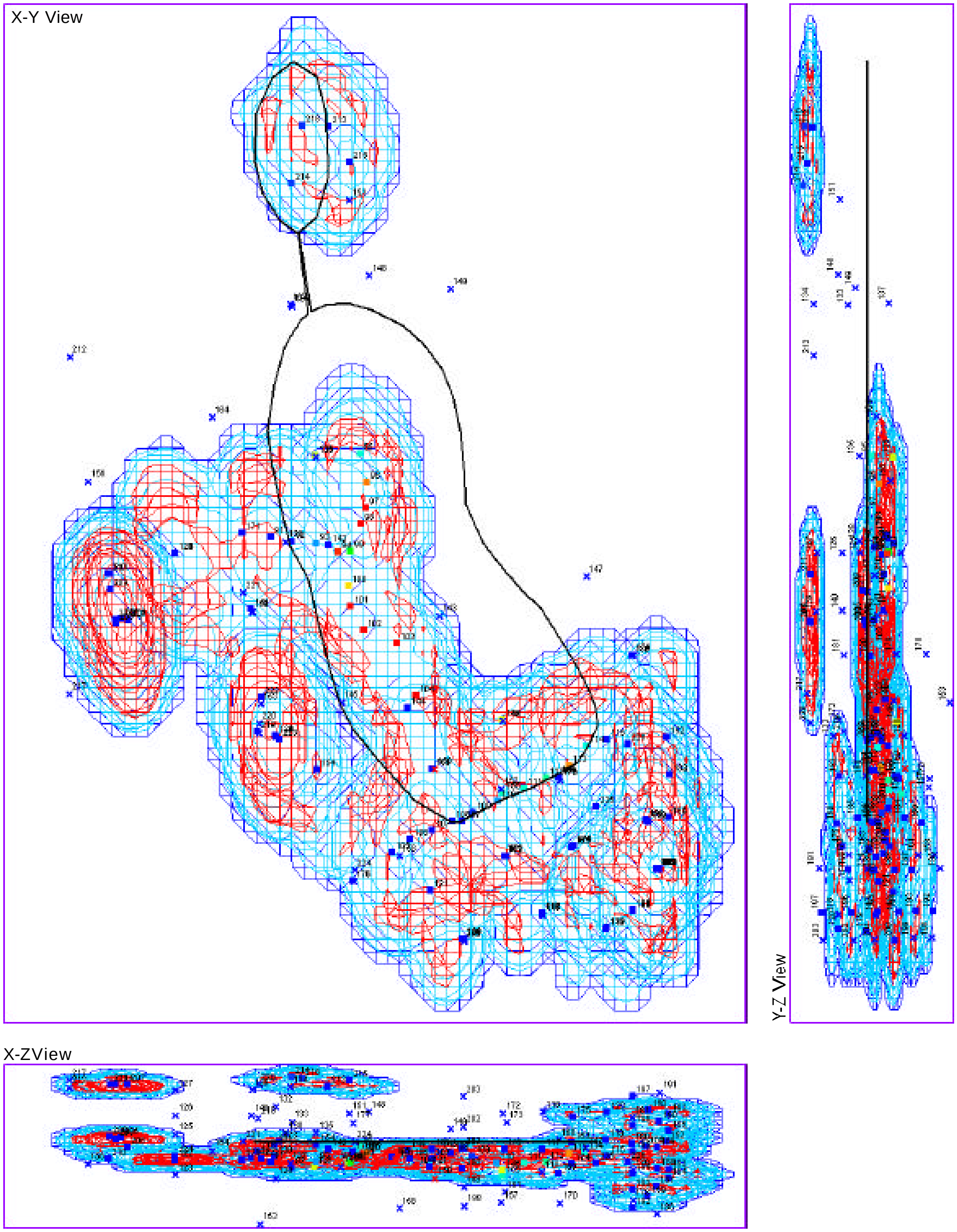
MassachusettsMilitaryReservation

CapeCod,Massachusetts

5/11/01 DB FS12-An00-Sp_41.cdr

Figure G-15

L:\04Reports\FS-12\FS12-An00-SpCoral\FS12-An00-Sp_41.cdr




## Legend

DataSource:JacobsEngineeringGroupInc.,28June2000,SiteEnvironmentalEvaluation(SEE)Database

175 Samplinglocationretainedbyspatialoptimization

159 Samplinglocationexcludedbyspatialoptimization

(numbersrefertotheIDcolumnintheresultstable)

EthyleneDibromide(µg/L)

0 1 2 3 4 5

Isosurfacescontouredat0.02,1,and5µg/L

N

0 1000

Scale in Feet

VerticalExaggeration in SideViews=5x

JACOBSENGINEERING

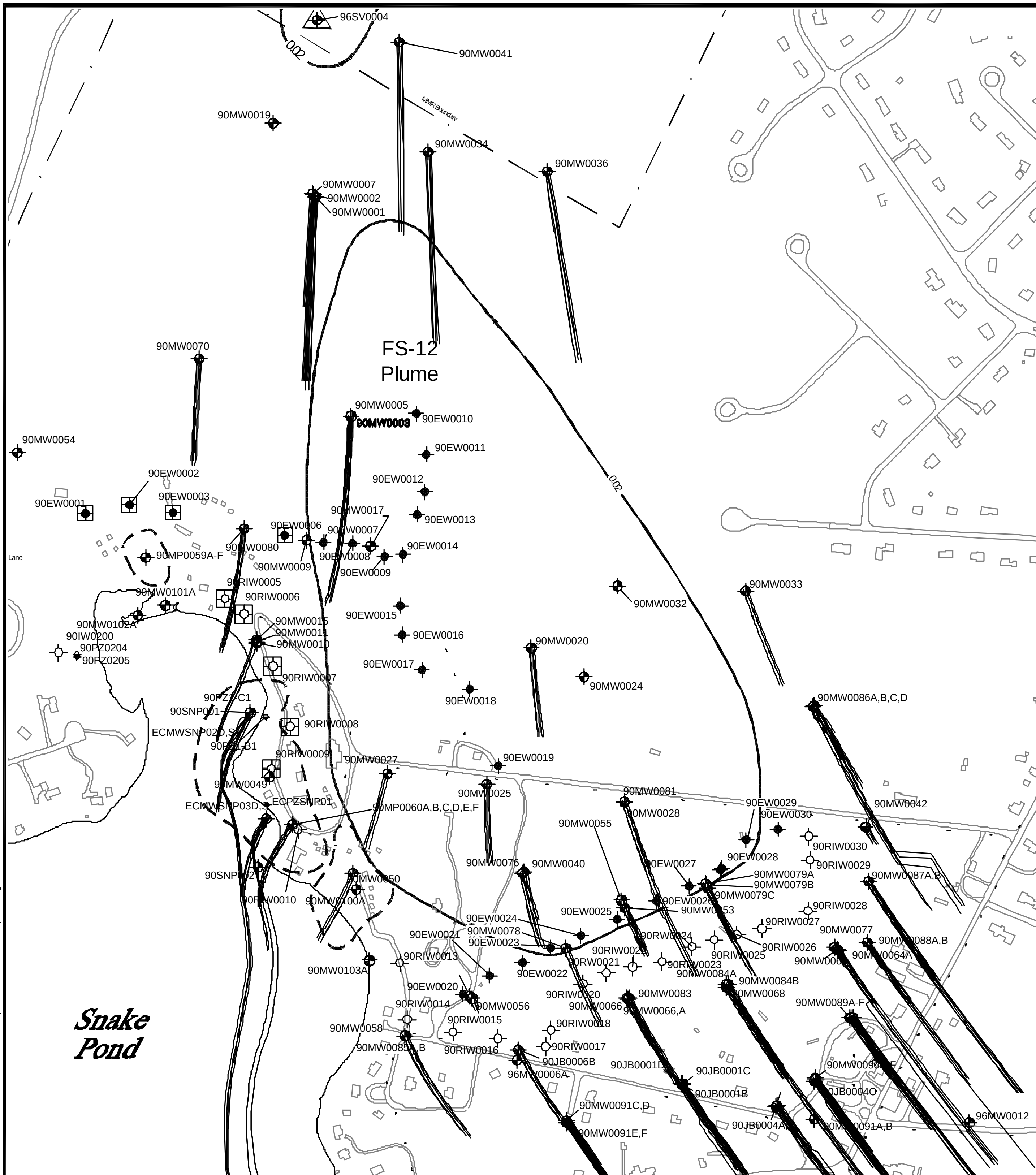
# Kriging Standard Deviation Following Spatial Optimization

MassachusettsMilitaryReservation

CapeCod,Massachusetts

5/11/01 DB FS12-An00-Sp_43.cdr

Figure G-16




- Monitoring Well
- Extraction Well
- Piezometer
- Reinjection Well
- Plumelet Contour (EDB MCL = 0.02 µg/L)
- Source Well
- Non-Operable Reinjection Well
- Non-Operable Extraction Well
- Plume Contour (EDB MCL = 0.02 µg/L)

0 500

Scale in Feet

JACOBS ENGINEERING

# Forward 3-Year Tracks from Monitoring Wells for Ambient Conditions at FS-12

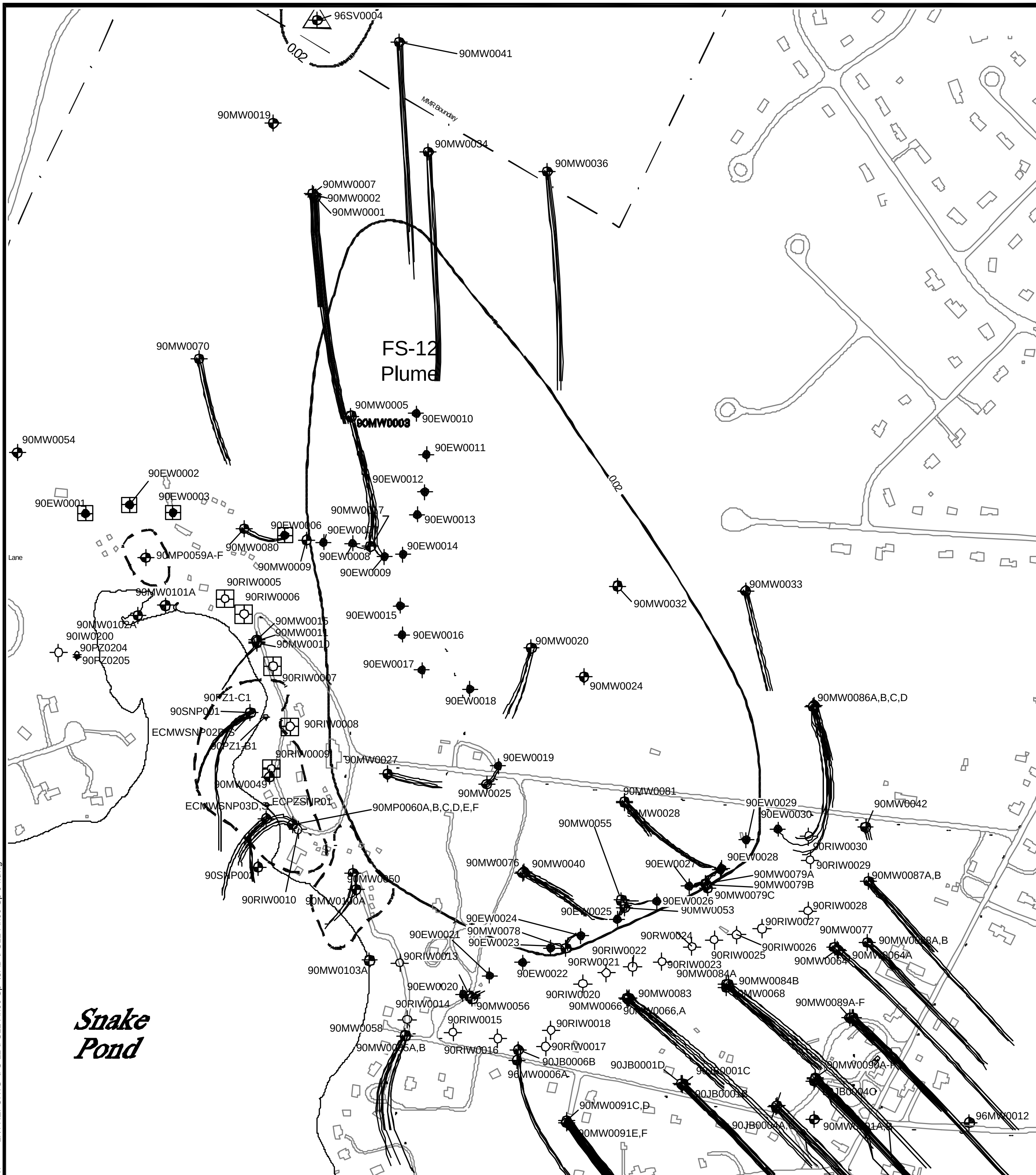
Massachusetts Military Reservation

Cape Cod, Massachusetts

12/26/01 WR FS12-An00-Sp-03.dwg

Figure G-17

last modified: 12/26/01 printed: 12/26/01 by Wr L:\4-REPORTS \FS-12\FS12-An00-Sp \CAD\FS12-An00-Sp-03.dwg




Monitoring Well
Extraction Well
Piezometer
Reinjection Well
Source Well
Non-Operable Reinjection Well
Non-Operable Extraction Well
Plume Contour (EDB MCL = 0.02 µg/L)
Plumelet Contour (EDB MCL = 0.02 µg/L)

0 500

Scale in Feet

JE JACOBS ENGINEERING

# Forward 3-Year Tracks from Monitoring Wells for Average Operating Conditions at FS-12

Massachusetts Military Reservation
Cape Cod, Massachusetts

12/26/01 WR FS12-An00-Sp-04.dwg | Figure G-18

last modified: 12/26/01 printed: 12/26/01 by Wr L:\4-REPORTS \FS-12 \FS12-An00-Sp \CAD \FS12-An00-Sp-04.dwg

# APPENDIX G

## Tables

**Table G-1**
**Sen's Trend Analysis for EDB at 90MW0003**

| No. of Data Pairs | No. of Time Periods | No. of Tied Results | No. of Tied Periods | No. of Slope Combinations | Sen's Estimate of True Slope | $Z_{1-\alpha/2}$ | $C_\alpha$ | S Statistic | Z | VAR(S) | $M_1$ | $M_2$ | Lower Slope Limit | Upper Slope Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **One-Tailed Analysis With 95% Confidence First Date: 11/12/96, Last Date: 05/04/00** | | | | | | | | | | | | | | |
| **0% Thinning** | | | | | | | | | | | | | | |
| 17 | 15 | 1 | 5 | 131 | -4.20 | 1.645 | 39.64 | -91 | 3.735 | 580.78 | 45.68 | 86.32 | -7.69 | -2.15 |
| **10% Thinning** | | | | | | | | | | | | | | |
| 15 | 15 | 1 | 4 | 101 | -6.00 | | | | | | | | | |
| **20% Thinning** | | | | | | | | | | | | | | |
| 14 | 15 | 1 | 3 | 88 | -3.55 | | | | | | | | | |
| **33% Thinning** | | | | | | | | | | | | | | |
| 11 | 15 | 1 | 2 | 53 | -3.50 | | | | | | | | | |
| **50% Thinning** | | | | | | | | | | | | | | |
| 9 | 15 | 1 | 1 | 35 | -6.40 | | | | | | | | | |
| **60% Thinning** | | | | | | | | | | | | | | |
| 7 | 15 | 1 | 1 | 20 | -3.21 | | | | | | | | | |
| **75% Thinning** | | | | | | | | | | | | | | |
| 4 | 11 | 1 | 0 | 6 | -8.10 | | | | | | | | | |
| **One-Tailed Analysis With 90% Confidence** | | | | | | | | | | | | | | |
| 17 | 15 | 1 | 5 | 131 | -4.20 | 1.282 | 30.90 | -91 | 3.735 | 580.78 | 50.05 | 81.95 | -7.45 | -2.57 |

EDB = ethylene dibromide

**Table G-2**
**Sen's Trend Analysis for EDB at 90MW0005**

| No. of Data Pairs | No. of Time Periods | No. of Tied Results | No. of Tied Periods | No. of Slope Combinations | Sen's Estimate of True Slope | $Z_{1-\alpha/2}$ | $C_\alpha$ | S Statistic | Z | VAR(S) | $M_1$ | $M_2$ | Lower Slope Limit | Upper Slope Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **One-Tailed Analysis With 95% Confidence** | | | | | | | | | | | | | | |
| **First Date: 10/02/96, Last Date: 05/04/00** | | | | | | | | | | | | | | |
| **0% Thinning** | | | | | | | | | | | | | | |
| 17 | 15 | 0 | 5 | 131 | -3.00 | 1.645 | 39.76 | -99 | 4.054 | 584.33 | 45.62 | 86.38 | -5.64 | -1.88 |
| **10% Thinning** | | | | | | | | | | | | | | |
| 15 | 14 | 0 | 4 | 101 | -3.13 | | | | | | | | | |
| **20% Thinning** | | | | | | | | | | | | | | |
| 14 | 12 | 0 | 3 | 88 | -2.89 | | | | | | | | | |
| **33% Thinning** | | | | | | | | | | | | | | |
| 11 | 12 | 0 | 2 | 53 | -2.83 | | | | | | | | | |
| **50% Thinning** | | | | | | | | | | | | | | |
| 9 | 12 | 0 | 0 | 36 | -1.98 | | | | | | | | | |
| **60% Thinning** | | | | | | | | | | | | | | |
| 7 | 11 | 0 | 1 | 20 | -2.38 | | | | | | | | | |
| **75% Thinning** | | | | | | | | | | | | | | |
| 4 | 7 | 0 | 1 | 5 | -5.62 | | | | | | | | | |
| **One-Tailed Analysis With 90% Confidence** | | | | | | | | | | | | | | |
| 17 | 15 | 0 | 5 | 131 | -3.00 | 1.282 | 30.99 | -99 | 4.054 | 584.33 | 50.01 | 81.99 | -5.00 | -2.00 |

EDB =ethylene dibromide

**Table G-3**
**Sen's Trend Analysis for EDB at 90MW0020**

| No. of Data Pairs | No. of Time Periods | No. of Tied Results | No. of Tied Periods | No. of Slope Combinations | Sen's Estimate of True Slope | $Z_{1-\alpha/2}$ | $C_\alpha$ | S Statistic | Z | VAR(S) | $M_1$ | $M_2$ | Lower Slope Limit | Upper Slope Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Two-Tailed Analysis With 95% Confidence** | | | | | | | | | | | | | | |
| **First Date: 03/19/93, Last Date: 05/03/00** | | | | | | | | | | | | | | |
| **0% Thinning** | | | | | | | | | | | | | | |
| 26 | 30 | 4 | 9 | 316 | -10.000 | 1.960 | 88.53 | -178 | 3.919 | 2040.22 | 113.73 | 203.27 | -13.731 | -5.760 |
| **10% Thinning** | | | | | | | | | | | | | | |
| 23 | 30 | 4 | 7 | 246 | -10.000 | | | | | | | | | |
| **20% Thinning** | | | | | | | | | | | | | | |
| 21 | 30 | 2 | 6 | 204 | -9.997 | | | | | | | | | |
| **33% Thinning** | | | | | | | | | | | | | | |
| 17 | 21 | 2 | 4 | 132 | -10.000 | | | | | | | | | |
| **50% Thinning** | | | | | | | | | | | | | | |
| 13 | 21 | 3 | 0 | 78 | -10.000 | | | | | | | | | |
| **60% Thinning** | | | | | | | | | | | | | | |
| 10 | 28 | 2 | 1 | 44 | -9.371 | | | | | | | | | |
| **75% Thinning** | | | | | | | | | | | | | | |
| 7 | 21 | 0 | 0 | 21 | -9.994 | | | | | | | | | |
| **80% Thinning** | | | | | | | | | | | | | | |
| 5 | 26 | 0 | 0 | 10 | -6.335 | | | | | | | | | |
| **Two-Tailed Analysis With 90% Confidence** | | | | | | | | | | | | | | |
| 26 | 30 | 4 | 9 | 316 | -10.000 | 1.645 | 74.30 | -178 | 3.919 | 2040.22 | 120.85 | 196.15 | -13.142 | -6.872 |
| **One-Tailed Analysis With 90% Confidence** | | | | | | | | | | | | | | |
| 26 | 30 | 4 | 9 | 316 | -10.000 | 1.282 | 57.91 | -178 | 3.919 | 2040.22 | 129.05 | 187.95 | -12.198 | -7.735 |
| **One-Tailed Analysis With 95% Confidence** | | | | | | | | | | | | | | |
| 26 | 30 | 4 | 9 | 316 | -10.000 | 1.645 | 74.30 | -178 | 3.919 | 2040.22 | 120.85 | 196.15 | -13.142 | -6.872 |

EDB = ethylene dibromide

## Table G-4
## Sen's Trend Analysis for EDB at 90MW0020 (Censored)

| No. of Data Pairs | No. of Time Periods | No. of Tied Results | No. of Tied Periods | No. of Slope Combinations | Sen's Estimate of True Slope | $Z_{1-\alpha/2}$ | $C_\alpha$ | S Statistic | Z | VAR(S) | $M_1$ | $M_2$ | Lower Slope Limit | Upper Slope Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **One-Tailed Analysis With 95% Confidence — First Date: 10/27/95, Last Date: 05/03/00** | | | | | | | | | | | | | | |
| **0% Thinning** | | | | | | | | | | | | | | |
| 20 | 19 | 2 | 7 | 183 | -14.000 | 1.645 | 50.39 | -90 | 2.905 | 938.48 | 66.30 | 117.70 | -18.537 | -7.038 |
| **10% Thinning** | | | | | | | | | | | | | | |
| 18 | 19 | 1 | 5 | 148 | -13.641 | | | | | | | | | |
| **20% Thinning** | | | | | | | | | | | | | | |
| 16 | 18 | 2 | 4 | 116 | -16.667 | | | | | | | | | |
| **33% Thinning** | | | | | | | | | | | | | | |
| 13 | 18 | 1 | 2 | 76 | -11.113 | | | | | | | | | |
| **50% Thinning** | | | | | | | | | | | | | | |
| 10 | 18 | 1 | 2 | 43 | -12.483 | | | | | | | | | |
| **60% Thinning** | | | | | | | | | | | | | | |
| 8 | 16 | 0 | 1 | 27 | -14.000 | | | | | | | | | |
| **75% Thinning** | | | | | | | | | | | | | | |
| 5 | 17 | 0 | 0 | 10 | -13.235 | | | | | | | | | |
| **One-Tailed Analysis With 90% Confidence** | | | | | | | | | | | | | | |
| 20 | 19 | 2 | 7 | 183 | -14.000 | 1.282 | 39.27 | -90 | 2.905 | 938.48 | 71.86 | 112.14 | -17.519 | -9.998 |

EDB = ethylene dibromide

**Table G-5**
**Sen's Trend Analysis for EDB at 90MW0025**

| No. of Data Pairs | No. of Time Periods | No. of Tied Results | No. of Tied Periods | No. of Slope Combinations | Sen's Estimate of True Slope | $Z_{1-\alpha/2}$ | $C_\alpha$ | S Statistic | Z | VAR(S) | $M_1$ | $M_2$ | Lower Slope Limit | Upper Slope Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Two-Tailed Analysis With 95% Confidence — First Date: 03/10/93, Last Date: 05/08/00** | | | | | | | | | | | | | | |
| **0% Thinning** | | | | | | | | | | | | | | |
| 21 | 30 | 2 | 7 | 203 | -0.0275 | 1.960 | 62.729 | -115 | 3.562 | 1024.300 | 70.135 | 133.865 | -0.0460 | -0.0118 |
| **10% Thinning** | | | | | | | | | | | | | | |
| 19 | 30 | 1 | 5 | 166 | -0.0282 | | | | | | | | | |
| **20% Thinning** | | | | | | | | | | | | | | |
| 17 | 30 | 2 | 5 | 131 | -0.0220 | | | | | | | | | |
| **33% Thinning** | | | | | | | | | | | | | | |
| 14 | 29 | 1 | 2 | 89 | -0.0260 | | | | | | | | | |
| **50% Thinning** | | | | | | | | | | | | | | |
| 11 | 30 | 1 | 1 | 54 | -0.0325 | | | | | | | | | |
| **60% Thinning** | | | | | | | | | | | | | | |
| 8 | 19 | 1 | 0 | 28 | -0.0449 | | | | | | | | | |
| **75% Thinning** | | | | | | | | | | | | | | |
| 5 | 26 | 1 | 0 | 10 | -0.0268 | | | | | | | | | |
| **Two-Tailed Analysis With 90% Confidence** | | | | | | | | | | | | | | |
| 21 | 30 | 2 | 7 | 203 | -0.0275 | 1.645 | 52.648 | -115 | 3.562 | 1024.300 | 75.176 | 128.824 | -0.0441 | -0.0136 |
| **One-Tailed Analysis With 95% Confidence** | | | | | | | | | | | | | | |
| 21 | 30 | 2 | 7 | 203 | -0.0275 | 1.645 | 52.648 | -115 | 3.562 | 1024.300 | 75.176 | 128.824 | -0.0441 | -0.0136 |
| **One-Tailed Analysis With 90% Confidence** | | | | | | | | | | | | | | |
| 21 | 30 | 2 | 7 | 203 | -0.0275 | 1.282 | 41.030 | -115 | 3.562 | 1024.300 | 80.985 | 123.015 | -0.0400 | -0.0150 |

EDB = ethylene dibromide

## Table G-6
## Sen's Trend Analysis for EDB at 90MW0025 (Censored)

| No. of Data Pairs | No. of Time Periods | No. of Tied Results | No. of Tied Periods | No. of Slope Combinations | Sen's Estimate of True Slope | $Z_{1-\alpha/2}$ | $C_\alpha$ | S Statistic | Z | VAR(S) | $M_1$ | $M_2$ | Lower Slope Limit | Upper Slope Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **One-Tailed Analysis With 95% Confidence** | | | | | | | | | | | | | | |
| **First Date: 09/27/96, Last Date: 05/08/00** | | | | | | | | | | | | | | |
| **0% Thinning** | | | | | | | | | | | | | | |
| 17 | 16 | 2 | 5 | 131 | -0.0400 | 1.645 | 38.774 | -117 | 4.921 | 555.588 | 46.113 | 85.887 | -0.0745 | -0.0275 |
| **10% Thinning** | | | | | | | | | | | | | | |
| 15 | 16 | 1 | 3 | 102 | -0.0407 | | | | | | | | | |
| **20% Thinning** | | | | | | | | | | | | | | |
| 14 | 16 | 2 | 4 | 87 | -0.0367 | | | | | | | | | |
| **33% Thinning** | | | | | | | | | | | | | | |
| 11 | 15 | 1 | 2 | 53 | -0.0407 | | | | | | | | | |
| **50% Thinning** | | | | | | | | | | | | | | |
| 9 | 12 | 1 | 0 | 36 | -0.0452 | | | | | | | | | |
| **60% Thinning** | | | | | | | | | | | | | | |
| 7 | 10 | 1 | 2 | 19 | -0.0413 | | | | | | | | | |
| **75% Thinning** | | | | | | | | | | | | | | |
| 4 | 11 | 1 | 0 | 6 | -0.0515 | | | | | | | | | |
| **One-Tailed Analysis With 90% Confidence** | | | | | | | | | | | | | | |
| 17 | 16 | 2 | 5 | 131 | -0.0400 | 1.282 | 30.218 | -117 | 4.921 | 555.588 | 50.391 | 81.609 | -0.0667 | -0.0275 |

EDB = ethylene dibromide

**Table G-7**
**Sen's Trend Analysis for EDB at 90MW0027**

| No. of Data Pairs | No. of Time Periods | No. of Tied Results | No. of Tied Periods | No. of Slope Combinations | Sen's Estimate of True Slope | $Z_{1-\alpha/2}$ | $C_\alpha$ | S Statistic | Z | VAR(S) | $M_1$ | $M_2$ | Lower Slope Limit | Upper Slope Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Two-Tailed Analysis With 95% Confidence — First Date: 03/10/93, Last Date: 05/04/00** | | | | | | | | | | | | | | |
| **0% Thinning** | | | | | | | | | | | | | | |
| 18 | 30 | 2 | 5 | 148 | -0.0388 | 1.960 | 50.475 | -69 | 2.641 | 663.190 | 48.763 | 100.237 | -0.3004 | -0.0007 |
| **10% Thinning** | | | | | | | | | | | | | | |
| 16 | 30 | 2 | 4 | 116 | -0.0341 | | | | | | | | | |
| **20% Thinning** | | | | | | | | | | | | | | |
| 14 | 30 | 1 | 3 | 88 | -0.0812 | | | | | | | | | |
| **33% Thinning** | | | | | | | | | | | | | | |
| 12 | 30 | 2 | 2 | 64 | -0.0309 | | | | | | | | | |
| **50% Thinning** | | | | | | | | | | | | | | |
| 9 | 30 | 1 | 0 | 36 | -0.0331 | | | | | | | | | |
| **60% Thinning** | | | | | | | | | | | | | | |
| 7 | 29 | 1 | 1 | 20 | -0.0220 | | | | | | | | | |
| **75% Thinning** | | | | | | | | | | | | | | |
| 5 | 29 | 1 | 0 | 10 | -0.0450 | | | | | | | | | |
| **Two-Tailed Analysis With 90% Confidence** | | | | | | | | | | | | | | |
| 18 | 30 | 2 | 5 | 148 | -0.0388 | 1.645 | 42.363 | -69 | 2.641 | 663.190 | 52.819 | 96.181 | -0.2765 | -0.0095 |
| **One-Tailed Analysis With 95% Confidence** | | | | | | | | | | | | | | |
| 18 | 30 | 2 | 5 | 148 | -0.0388 | 1.645 | 42.363 | -69 | 2.641 | 663.190 | 52.819 | 96.181 | -0.2765 | -0.0095 |
| **One-Tailed Analysis With 90% Confidence** | | | | | | | | | | | | | | |
| 18 | 30 | 2 | 5 | 148 | -0.0388 | 1.282 | 33.015 | -69 | 2.641 | 663.190 | 57.493 | 91.507 | -0.1552 | -0.0105 |

EDB = ethylene dibromide

**Table G-8**
**Sen's Trend Analysis for EDB at 90MW0027 (Censored)**

| No. of Data Pairs | No. of Time Periods | No. of Tied Results | No. of Tied Periods | No. of Slope Combinations | Sen's Estimate of True Slope | $Z_{1-\alpha/2}$ | $C_\alpha$ | S Statistic | Z | VAR(S) | $M_1$ | $M_2$ | Lower Slope Limit | Upper Slope Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **One-Tailed Analysis With 95% Confidence** | | | | | | | | | | | | | | |
| **First Date: 11/21/97, Last Date: 05/04/00** | | | | | | | | | | | | | | |
| **0% Thinning** | | | | | | | | | | | | | | |
| 14 | 11 | 1 | 4 | 87 | -0.158 | 1.645 | 29.485 | -77 | 4.240 | 321.264 | 28.758 | 59.242 | -0.716 | -0.034 |
| **10% Thinning** | | | | | | | | | | | | | | |
| 13 | 11 | 1 | 3 | 75 | -0.184 | | | | | | | | | |
| **20% Thinning** | | | | | | | | | | | | | | |
| 11 | 11 | 1 | 3 | 52 | -0.294 | | | | | | | | | |
| **33% Thinning** | | | | | | | | | | | | | | |
| 9 | 10 | 1 | 2 | 34 | -0.214 | | | | | | | | | |
| **50% Thinning** | | | | | | | | | | | | | | |
| 7 | 11 | 1 | 0 | 21 | -0.244 | | | | | | | | | |
| **60% Thinning** | | | | | | | | | | | | | | |
| 6 | 10 | 0 | 1 | 14 | -0.129 | | | | | | | | | |
| **One-Tailed Analysis With 90% Confidence** | | | | | | | | | | | | | | |
| 14 | 11 | 1 | 4 | 87 | -0.158 | 1.282 | 22.978 | -77 | 4.240 | 321.264 | 32.011 | 55.989 | -0.440 | -0.058 |

EDB = ethylene dibromide

**Table G-9**
**Sen's Trend Analysis for EDB at 90MW0040**

| No. of Data Pairs | No. of Time Periods | No. of Tied Results | No. of Tied Periods | No. of Slope Combinations | Sen's Estimate of True Slope | $Z_{1-\alpha/2}$ | $C_\alpha$ | S Statistic | Z | VAR(S) | $M_1$ | $M_2$ | Lower Slope Limit | Upper Slope Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Two-Tailed Analysis With 95% Confidence — First Date: 03/13/93, Last Date: 05/05/00** | | | | | | | | | | | | | | |
| **0% Thinning** | | | | | | | | | | | | | | |
| 20 | 30 | 2 | 8 | 182 | -2.436 | 1.960 | 60.095 | -22 | 0.685 | 940.084 | 60.952 | 122.048 | -11.586 | 1.863 |
| **10% Thinning** | | | | | | | | | | | | | | |
| 18 | 30 | 1 | 6 | 147 | -2.094 | | | | | | | | | |
| **20% Thinning** | | | | | | | | | | | | | | |
| 16 | 30 | 1 | 5 | 115 | -2.168 | | | | | | | | | |
| **33% Thinning** | | | | | | | | | | | | | | |
| 13 | 30 | 2 | 2 | 76 | -2.312 | | | | | | | | | |
| **50% Thinning** | | | | | | | | | | | | | | |
| 10 | 30 | 2 | 1 | 44 | -1.920 | | | | | | | | | |
| **60% Thinning** | | | | | | | | | | | | | | |
| 8 | 30 | 0 | 1 | 27 | -5.350 | | | | | | | | | |
| **75% Thinning** | | | | | | | | | | | | | | |
| 5 | 27 | 0 | 0 | 10 | -5.019 | | | | | | | | | |
| **Two-Tailed Analysis With 90% Confidence** | | | | | | | | | | | | | | |
| 20 | 30 | 2 | 8 | 182 | -2.436 | 1.645 | 50.437 | -22 | 0.685 | 940.084 | 65.782 | 117.219 | -10.323 | 1.159 |
| **One-Tailed Analysis With 95% Confidence** | | | | | | | | | | | | | | |
| 20 | 30 | 2 | 8 | 182 | -2.436 | 1.645 | 50.437 | -22 | 0.685 | 940.084 | 65.782 | 117.219 | -10.323 | 1.159 |
| **One-Tailed Analysis With 90% Confidence** | | | | | | | | | | | | | | |
| 20 | 30 | 2 | 8 | 182 | -2.436 | 1.282 | 39.307 | -22 | 0.685 | 940.084 | 71.346 | 111.654 | -9.442 | 0.336 |

EDB = ethylene dibromide

**Table G-10**
**Sen's Trend Analysis for EDB at 90MW0040 (Censored)**

| No. of Data Pairs | No. of Time Periods | No. of Tied Results | No. of Tied Periods | No. of Slope Combinations | Sen's Estimate of True Slope | $Z_{1-\alpha/2}$ | $C_\alpha$ | S Statistic | Z | VAR(S) | $M_1$ | $M_2$ | Lower Slope Limit | Upper Slope Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **0% Thinning** | | | | | | | | | | | | | | |
| 12 | 10 | 0 | 4 | 62 | -18.14 | 1.645 | 23.76 | -52 | 3.531 | 208.67 | 19.12 | 43.88 | -26.61 | -12.45 |
| **10% Thinning** | | | | | | | | | | | | | | |
| 11 | 10 | 0 | 3 | 52 | -16.95 | | | | | | | | | |
| **20% Thinning** | | | | | | | | | | | | | | |
| 10 | 9 | 0 | 3 | 42 | -14.14 | | | | | | | | | |
| **33% Thinning** | | | | | | | | | | | | | | |
| 8 | 8 | 0 | 2 | 26 | -16.28 | | | | | | | | | |
| **50% Thinning** | | | | | | | | | | | | | | |
| 6 | 9 | 0 | 1 | 14 | -21.75 | | | | | | | | | |
| **60% Thinning** | | | | | | | | | | | | | | |
| 5 | 10 | 0 | 0 | 10 | -14.47 | | | | | | | | | |
| **One-Tailed Analysis With 90% Confidence** | | | | | | | | | | | | | | |
| 12 | 10 | 0 | 4 | 62 | -18.14 | 1.282 | 18.52 | -52 | 3.531 | 208.67 | 21.74 | 41.26 | -23.77 | -12.53 |

EDB = ethylene dibromide

## Table G-11
## Sen's Trend Analysis for EDB at 90MW0050

| No. of Data Pairs | No. of Time Periods | No. of Tied Results | No. of Tied Periods | No. of Slope Combinations | Sen's Estimate of True Slope | $Z_{1-\alpha/2}$ | $C_{\alpha}$ | S Statistic | Z | VAR(S) | $M_1$ | $M_2$ | Lower Slope Limit | Upper Slope Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Two-Tailed Analysis With 95% Confidence** | | | | | | | | | | | | | | |
| **First Date: 03/20/93, Last Date: 05/04/00** | | | | | | | | | | | | | | |
| **0% Thinning** | | | | | | | | | | | | | | |
| 24 | 30 | 3 | 7 | 269 | -0.0032 | 1.960 | 78.593 | -39 | 0.948 | 1607.9 | 95.204 | 174.796 | -0.0098 | 0.0027 |
| **10% Thinning** | | | | | | | | | | | | | | |
| 22 | 30 | 3 | 6 | 225 | -0.0043 | | | | | | | | | |
| **20% Thinning** | | | | | | | | | | | | | | |
| 19 | 29 | 2 | 7 | 164 | -0.0039 | | | | | | | | | |
| **33% Thinning** | | | | | | | | | | | | | | |
| 16 | 30 | 3 | 2 | 118 | -0.0048 | | | | | | | | | |
| **50% Thinning** | | | | | | | | | | | | | | |
| 12 | 30 | 1 | 1 | 65 | -0.0025 | | | | | | | | | |
| **60% Thinning** | | | | | | | | | | | | | | |
| 10 | 29 | 1 | 2 | 43 | -0.0003 | | | | | | | | | |
| **75% Thinning** | | | | | | | | | | | | | | |
| 6 | 22 | 1 | 0 | 15 | 0.0021 | | | | | | | | | |
| **80% Thinning** | | | | | | | | | | | | | | |
| 5 | 20 | 0 | 0 | 10 | -0.0073 | | | | | | | | | |
| **Two-Tailed Analysis With 90% Confidence** | | | | | | | | | | | | | | |
| 24 | 30 | 3 | 7 | 269 | -0.0032 | 1.645 | 65.962 | -39 | 0.948 | 1607.9 | 101.519 | 168.481 | -0.0086 | 0.0018 |
| **One-Tailed Analysis With 90% Confidence** | | | | | | | | | | | | | | |
| 24 | 30 | 3 | 7 | 269 | -0.0032 | 1.282 | 51.406 | -39 | 0.948 | 1607.9 | 108.797 | 161.203 | -0.0068 | 0.001 |
| **One-Tailed Analysis With 95% Confidence** | | | | | | | | | | | | | | |
| 24 | 30 | 3 | 7 | 269 | -0.0032 | 1.645 | 65.962 | -39 | 0.948 | 1607.9 | 101.519 | 168.481 | -0.0086 | 0.0018 |

EDB = ethylene dibromide

## Table G-12
## Sen's Trend Analysis for EDB at 90MW0053

| No. of Data Pairs | No. of Time Periods | No. of Tied Results | No. of Tied Periods | No. of Slope Combinations | Sen's Estimate of True Slope | $Z_{1-\alpha/2}$ | $C_\alpha$ | S Statistic | Z | VAR(S) | $M_1$ | $M_2$ | Lower Slope Limit | Upper Slope Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Two-Tailed Analysis With 95% Confidence** | | | | | | | | | | | | | | |
| **First Date: 03/21/93, Last Date: 05/04/00** | | | | | | | | | | | | | | |
| **0% Thinning** | | | | | | | | | | | | | | |
| 21 | 30 | 2 | 6 | 204 | 0.0984 | 1.960 | 64.672 | 146 | 4.394 | 1088.724 | 69.664 | 135.336 | 0.0263 | 0.2544 |
| **10% Thinning** | | | | | | | | | | | | | | |
| 19 | 30 | 2 | 4 | 167 | 0.0968 | | | | | | | | | |
| **20% Thinning** | | | | | | | | | | | | | | |
| 17 | 30 | 1 | 3 | 133 | 0.1043 | | | | | | | | | |
| **33% Thinning** | | | | | | | | | | | | | | |
| 14 | 20 | 0 | 2 | 89 | 0.0795 | | | | | | | | | |
| **50% Thinning** | | | | | | | | | | | | | | |
| 11 | 20 | 1 | 2 | 53 | 0.0919 | | | | | | | | | |
| **60% Thinning** | | | | | | | | | | | | | | |
| 8 | 29 | 0 | 0 | 28 | 0.0519 | | | | | | | | | |
| **75% Thinning** | | | | | | | | | | | | | | |
| 5 | 16 | 0 | 0 | 10 | 0.274 | | | | | | | | | |
| **Two-Tailed Analysis With 90% Confidence** | | | | | | | | | | | | | | |
| 21 | 30 | 2 | 6 | 204 | 0.0984 | 1.645 | 54.278 | 146 | 4.394 | 1088.724 | 74.861 | 130.139 | 0.0391 | 0.1898 |
| **One-Tailed Analysis With 95% Confidence** | | | | | | | | | | | | | | |
| 21 | 30 | 2 | 6 | 204 | 0.0984 | 1.645 | 54.278 | 146 | 4.394 | 1088.724 | 74.861 | 130.139 | 0.0391 | 0.1898 |
| **One-Tailed Analysis With 90% Confidence** | | | | | | | | | | | | | | |
| 21 | 30 | 2 | 6 | 204 | 0.0984 | 1.282 | 42.301 | 146 | 4.394 | 1088.724 | 80.850 | 124.150 | 0.055 | 0.1729 |

EDB = ethylene dibromide

## Table G-13
## FS-12 EDB Sen's Trend Analysis Summary

| Well | Type of Analysis | % Data Thinning 10 | 20 | 33 | 50 | 60 | 75 | 80 | Data Trend | Sample Date Range |
|---|---|---|---|---|---|---|---|---|---|---|
| 90MW0003 | 1-T, 95% | Pass | Pass | Pass | Pass | Pass | Fail | NA | Decreasing | 11/12/96 to 5/4/00 |
| | 1-T, 90% | Pass | Pass | Pass | Pass | Pass | Fail | NA | | |
| 90MW0005 | 1-T, 95% | Pass | Pass | Pass | Pass | Pass | Pass | NA | Decreasing | 10/2/96 to 5/4/00 |
| | 1-T, 90% | Pass | Pass | Pass | Fail | Pass | Fail | NA | | |
| 90MW0020 | 1-T, 95% | Pass | Pass | Pass | Pass | Pass | Pass | Fail | Decreasing | 3/19/93 to 5/3/00 |
| | 1-T, 90% | Pass | Pass | Pass | Pass | Pass | Pass | Fail | | |
| Censored | 1-T, 95% | Pass | Pass | Pass | Pass | Pass | Pass | NA | Decreasing | 10/27/95 to 5/3/00 |
| | 1-T, 90% | Pass | Pass | Pass | Pass | Pass | Pass | NA | | |
| 90MW0025 | 1-T, 95% | Pass | Pass | Pass | Pass | Fail | Pass | NA | Decreasing | 3/10/93 to 5/8/00 |
| | 1-T, 90% | Pass | Pass | Pass | Pass | Fail | Pass | NA | | |
| Censored | 1-T, 95% | Pass | Pass | Pass | Pass | Pass | Pass | NA | Decreasing | 9/27/96 to 5/8/00 |
| | 1-T, 90% | Pass | Pass | Pass | Pass | Pass | Pass | NA | | |
| 90MW0027 | 1-T, 95% | Pass | Pass | Pass | Pass | Pass | Pass | NA | Decreasing | 3/10/93 to 5/4/00 |
| | 1-T, 90% | Pass | Pass | Pass | Pass | Pass | Pass | NA | | |
| Censored | 1-T, 95% | Pass | Pass | Pass | Pass | Pass | NA | NA | Decreasing | 11/21/97 to 5/4/00 |
| | 1-T, 90% | Pass | Pass | Pass | Pass | Pass | NA | NA | | |
| 90MW0040 | 2-T, 95% | Pass | Pass | Pass | Pass | Pass | Pass | NA | No Trend | 3/13/93 to 5/5/00 |
| | 2-T, 90% | Pass | Pass | Pass | Pass | Pass | Pass | NA | | |
| | 1-T, 95% | Pass | Pass | Pass | Pass | Pass | Pass | NA | | |
| | 1-T, 90% | Pass | Pass | Pass | Pass | Pass | Pass | NA | | |
| Censored | 1-T, 95% | Pass | Pass | Pass | Pass | Pass | Pass | NA | Decreasing | 2/25/98 to 5/5/00 |
| | 1-T, 90% | Pass | Pass | Pass | Pass | Pass | Pass | NA | | |
| 90MW0050 | 2-T, 95% | Pass | Pass | Pass | Pass | Pass | Pass | Pass | No Trend | 3/20/93 to 5/4/00 |
| | 2-T, 90% | Pass | Pass | Pass | Pass | Pass | Fail | Pass | | |
| 90MW0053 | 1-T, 95% | Pass | Pass | Pass | Pass | Pass | Fail | NA | Increasing | 3/21/93 to 5/4/00 |
| | 1-T, 90% | Pass | Pass | Pass | Pass | Fail | Fail | NA | | |

Notes: 1-T means one-tailed analysis
2-T means two-tailed analysis
95% means 95% confidence level for upper and lower slope limits
90% mean 90% confidence level for upper and lower slope limits
Pass/Fail indicates whether or not the slope remains the same after data thinning
NA means not applicable

## Table G-14
## Kriging Parameters Used for Spatial Optimization

| Parameter | Value | Comment |
|---|---|---|
| Grid Origin | 866545, 249535, -97.5 | Easting (ft), northing (ft), and elevation (ft msl). |
| Cell Size | 70, 70, 5 | Cell size in feet in the x, y, and z directions. |
| Grid Size | 62, 85, 38 | Number of cells in the x, y, and z directions. |
| Block discretization | 1, 1, 1 | x, y and z block discretization. Not used because all values were set to 1. |
| Min, Max data count | 2, 8 | Minimum and maximum number of observations used for kriging. |
| Max per octant | 8 | |
| Max search radii | 625, 312.5, 12.5 | Distances in feet in the principle direction, transverse direction, and vertically. |
| Search angles | 170, 0, 0 | Angles for the search ellipsoid. The first is clockwise about the z axis; the other two were not used. |
| Kriging type | 1 | Ordinary kriging. |
| Drift matrix | 0, 0, 0, 0, 0, 0, 0, 0, 0 | Not used because all values are zero. |
| Variogram count | 1 | Only one variogram structure used, although GSLIB permits more. |
| Nugget constant | 0 | Not used because it equals zero. |
| Variogram type | 1 | Spherical semivariogram. |
| Contribution | 43.164 | Also known as the sill value. |
| Anisotropy angles | 170, 0, 0 | Angles for the anisotropy ellipsoid. The first is clockwise about the z axis; the other two are not used. |
| Anisotropy ranges | 1457.1, 728.55, 29.142 | Distances in feet in the principle direction, transverse direction, and vertically. |

ft msl = feet mean sea level

GSLIB = Geostatistical Software Library (Deutsch and Journel 1998)

max = maximum

min = minimum

**Table G-15**
**FS-12 Sampling Network With Results of**
**Spatial Optimization for EDB Monitoring**

| Sampling Location | Figure ID | Easting (ft) | Northing (ft) | Elevation (ft msl) | EDB (µg/L) | Global Kriging Weight | Number of Cells Influenced |
|---|---|---|---|---|---|---|---|
| ***Locations excluded by spatial optimization*** | | | | | | | |
| 90JB0001B | 116 | 869662 | 250131 | 35.05 | 0 | 87 | 199 |
| 90JB0001D | 118 | 869658 | 250137 | -34.93 | 0 | 90 | 207 |
| 90MP0059B | 123 | 867512 | 252243 | -38.6 | 0.02 | 31 | 61 |
| 90MP0059D | 125 | 867512 | 252243 | 9 | 0 | 56 | 113 |
| 90MP0059E | 126 | 867513 | 252243 | 30.9 | 0 | 29 | 58 |
| 90MP0059F | 127 | 867513 | 252243 | 59.4 | 0 | 66 | 135 |
| 90MP0060B | 128 | 868100 | 251175 | -42.23 | 0 | 14 | 28 |
| 90MP0060F | 132 | 868100 | 251175 | 40.77 | 0 | 64 | 132 |
| 90MW0001 | 133 | 868194 | 253687 | 23.2 | 0 | 7 | 15 |
| 90MW0002 | 134 | 868186 | 253695 | 63.9 | 0 | 21 | 43 |
| **90MW0003** | 135 | 868335 | 252806 | 10.47 | 0.03 | 69 | 138 |
| 90MW0007 | 137 | 868182 | 253701 | -24.3 | 0 | 17 | 34 |
| 90MW0009 | 138 | 868157 | 252314 | 10.25 | 0 | 85 | 172 |
| 90MW0010 | 139 | 867959 | 251902 | 60.27 | 0 | 71 | 142 |
| 90MW0011 | 140 | 867958 | 251907 | 30.24 | 0 | 78 | 163 |
| **90MW0020** | 143 | 869058 | 251879 | -11.13 | 0.18 | 70 | 164 |
| **90MW0027** | 145 | 868481 | 251376 | -29.23 | 0 | 96 | 215 |
| 90MW0033 | 147 | 869914 | 252110 | -7.34 | 0 | 64 | 130 |
| 90MW0034 | 148 | 868645 | 253868 | 34.9 | 0 | 97 | 195 |
| 90MW0036 | 149 | 869121 | 253790 | 14.7 | 0 | 0 | 0 |
| **90MW0040** | 150 | 869029 | 250985 | -42.41 | 9.8 | 88 | 187 |
| 90MW0041 | 151 | 868529 | 254309 | 33 | 0 | 97 | 194 |
| 90MW0049 | 153 | 868008 | 251365 | -95.62 | 0.02 | 0 | 0 |
| 90MW0054 | 156 | 867000 | 252664 | -25.74 | 0 | 68 | 138 |
| 90MW0055 | 157 | 869418 | 250870 | -70.65 | 0 | 94 | 193 |
| 90MW0056 | 158 | 868821 | 250477 | -77.43 | 0 | 34 | 67 |
| 90MW0066 | 161 | 869438 | 250479 | -58.64 | 0 | 96 | 195 |
| 90MW0070 | 164 | 867727 | 253039 | -9.89 | 0 | 22 | 45 |
| 90MW0079A | 168 | 869755 | 250937 | 2.75 | 0 | 97 | 217 |
| 90MW0079C | 170 | 869762 | 250920 | -71.3 | 0 | 69 | 141 |

**Table G-15**
**FS-12 Sampling Network With Results of Spatial Optimization for EDB Monitoring**

| Sampling Location | Figure ID | Easting (ft) | Northing (ft) | Elevation (ft msl) | EDB (µg/L) | Global Kriging Weight | Number of Cells Influenced |
|---|---|---|---|---|---|---|---|
| 90MW0081 | 172 | 869429 | 251267 | 33.25 | 0 | 24 | 49 |
| 90MW0083 | 173 | 869449 | 250478 | 22.76 | 0 | 90 | 191 |
| 90MW0085B | 177 | 868553 | 250328 | 21.95 | 0 | 1 | 2 |
| 90MW0086A | 178 | 870190 | 251652 | -67.79 | 0 | 10 | 20 |
| 90MW0086B | 179 | 870189 | 251652 | -32.79 | 0 | 66 | 144 |
| 90MW0086D | 181 | 870186 | 251646 | 28.42 | 0 | 40 | 81 |
| 90MW0089A | 186 | 870330 | 250398 | -83.73 | 0 | 86 | 178 |
| 90MW0089F | 191 | 870346 | 250400 | 57.58 | 0 | 92 | 186 |
| 90MW0091A | 198 | 869201 | 249994 | -74.49 | 0 | 44 | 90 |
| 90MW0091B | 199 | 869201 | 249994 | -52.49 | 0 | 60 | 120 |
| 90MW0091D | 201 | 869198 | 249986 | -7.46 | 0 | 65 | 152 |
| 90MW0091E | 202 | 869197 | 249980 | 17.58 | 0 | 30 | 60 |
| 90MW0091F | 203 | 869197 | 249979 | 52.58 | 0 | 0 | 0 |
| 90WT0005 | 212 | 866892 | 253392 | 63.33 | 0 | 0 | 0 |
| ECMWSNP01 | 217 | 866890 | 251424 | 71.34 | 0 | 31 | 64 |
| ECMWSNP03S | 219 | 867997 | 251198 | 27.86 | 0 | 83 | 183 |
| ECPZSNP01 | 220 | 868000 | 251252 | 67.18 | 0 | 43 | 86 |
| 90RIW0006 | 221 | 867907 | 252017 | 0.28 | 0 | 89 | 183 |
| 90RIW0014 | 224 | 868560 | 250394 | 0.09 | 0 | 84 | 180 |
| ***Locations retained by spatial optimization*** | | | | | | | |
| 90EW0006 | 91 | 868073 | 252338 | -24.46 | 0 | 112 | 401 |
| **90EW0007** | 92 | 868199 | 252308 | -30.96 | 0.04 | 100 | 323 |
| **90EW0008** | 93 | 868342 | 252301 | -24.73 | 0.75 | 74 | 393 |
| **90EW0009** | 94 | 868469 | 252247 | -23.75 | 4.8 | 15 | 418 |
| **90EW0010** | 95 | 868596 | 252822 | -6.16 | 1.5 | 111 | 250 |
| **90EW0011** | 96 | 868636 | 252656 | -14.59 | 4.4 | 106 | 364 |
| **90EW0012** | 97 | 868631 | 252506 | -14.9 | 31 | 68 | 394 |
| **90EW0013** | 98 | 868601 | 252416 | -21.39 | 14 | 93 | 404 |
| **90EW0014** | 99 | 868543 | 252256 | -25.59 | 2.5 | 59 | 395 |
| **90EW0015** | 100 | 868533 | 252050 | -24.97 | 3.9 | 16 | 406 |
| **90EW0016** | 101 | 868539 | 251933 | -25.72 | 8.7 | 88 | 390 |
| **90EW0017** | 102 | 868618 | 251793 | -14.79 | 13 | 129 | 378 |
| **90EW0018** | 103 | 868811 | 251717 | -22.35 | 6.7 | 127 | 415 |

**Table G-15**
**FS-12 Sampling Network With Results of**
**Spatial Optimization for EDB Monitoring**

| Sampling Location | Figure ID | Easting (ft) | Northing (ft) | Elevation (ft msl) | EDB (μg/L) | Global Kriging Weight | Number of Cells Influenced |
|---|---|---|---|---|---|---|---|
| **90EW0019** | 104 | 868924 | 251409 | -29.57 | 23 | 156 | 346 |
| 90EW0020 | 105 | 868784 | 250494 | -18.78 | 0 | 144 | 391 |
| 90EW0021 | 106 | 868890 | 250569 | -20.77 | 0 | 80 | 409 |
| 90EW0022 | 107 | 869021 | 250621 | -21.09 | 0 | 98 | 416 |
| **90EW0023** | 108 | 869134 | 250679 | -13.92 | 0.01 | 46 | 414 |
| **90EW0024** | 109 | 869255 | 250729 | -17.33 | 0.24 | 101 | 416 |
| **90EW0025** | 110 | 869400 | 250795 | -25.4 | 0.76 | 126 | 403 |
| **90EW0026** | 111 | 869558 | 250867 | -25.58 | 1.5 | 77 | 409 |
| **90EW0027** | 112 | 869687 | 250927 | -24.72 | 1.8 | 81 | 395 |
| **90EW0028** | 113 | 869819 | 250999 | -15.77 | 4.3 | 117 | 405 |
| **90EW0029** | 114 | 869916 | 251113 | -12.86 | 1.4 | 112 | 415 |
| 90EW0030 | 115 | 870043 | 251155 | -17.1 | 0 | 118 | 415 |
| 90JB0001C | 117 | 869663 | 250136 | -9.83 | 0 | 118 | 283 |
| 90JB0004A | 119 | 870036 | 250042 | 1.5 | 0 | 121 | 276 |
| 90JB0004C | 120 | 870042 | 250055 | 33.34 | 0 | 118 | 277 |
| 90JB0006B | 121 | 869006 | 250272 | -29.72 | 0 | 141 | 349 |
| 90MP0059A | 122 | 867512 | 252243 | -21.6 | 0 | 154 | 400 |
| 90MP0059C | 124 | 867512 | 252243 | -18.1 | 0 | 153 | 386 |
| 90MP0060D | 130 | 868100 | 251175 | -17.23 | 0 | 116 | 389 |
| 90MP0060E | 131 | 868100 | 251175 | -4.23 | 0 | 96 | 408 |
| **90MW0005** | 136 | 868333 | 252810 | -29.96 | 3.5 | 104 | 245 |
| 90MW0015 | 141 | 867957 | 251913 | -19.69 | 0 | 149 | 378 |
| **90MW0017** | 142 | 868414 | 252288 | -9.3 | 0 | 101 | 261 |
| **90MW0025** | 144 | 868877 | 251335 | -11 | 0 | 146 | 385 |
| **90MW0028** | 146 | 869430 | 251263 | -34.14 | 3.6 | 108 | 298 |
| 90MW0042 | 152 | 870394 | 251163 | -1.4 | 0 | 136 | 302 |
| 90MW0050 | 154 | 868344 | 250979 | -4.44 | 0 | 139 | 335 |
| **90MW0053** | 155 | 869431 | 250841 | -40.47 | 1.6 | 141 | 346 |
| 90MW0064 | 159 | 870280 | 250674 | -63.95 | 0 | 105 | 235 |
| 90MW0064A | 160 | 870287 | 250668 | 35.64 | 0 | 133 | 301 |
| 90MW0066A | 162 | 869444 | 250473 | -10.09 | 0 | 136 | 385 |
| 90MW0068 | 163 | 869837 | 250522 | -2.1 | 0 | 153 | 410 |
| **90MW0076** | 165 | 869021 | 250980 | -9.97 | 0 | 120 | 392 |

**Table G-15**
**FS-12 Sampling Network With Results of**
**Spatial Optimization for EDB Monitoring**

| Sampling Location | Figure ID | Easting (ft) | Northing (ft) | Elevation (ft msl) | EDB (µg/L) | Global Kriging Weight | Number of Cells Influenced |
|---|---|---|---|---|---|---|---|
| 90MW0077 | 166 | 870269 | 250683 | -6.11 | 0 | 144 | 412 |
| 90MW0078 | 167 | 869196 | 250678 | -8.93 | 0 | 97 | 394 |
| 90MW0079B | 169 | 869759 | 250932 | -37.29 | 0 | 102 | 282 |
| 90MW0080 | 171 | 867908 | 252360 | -22.41 | 0 | 141 | 387 |
| 90MW0084A | 174 | 869839 | 250534 | -26.74 | 0 | 121 | 408 |
| 90MW0084B | 175 | 869844 | 250534 | 28.39 | 0 | 121 | 290 |
| 90MW0085A | 176 | 868553 | 250328 | -13.05 | 0 | 120 | 271 |
| 90MW0086C | 180 | 870185 | 251645 | -3.23 | 0 | 142 | 300 |
| 90MW0087A | 182 | 870406 | 250946 | -33.24 | 0 | 134 | 336 |
| 90MW0087B | 183 | 870406 | 250946 | 31.76 | 0 | 132 | 296 |
| 90MW0088A | 184 | 870402 | 250701 | -43.38 | 0 | 136 | 331 |
| 90MW0088B | 185 | 870402 | 250701 | 11.42 | 0 | 102 | 224 |
| 90MW0089B | 187 | 870330 | 250398 | -52.73 | 0 | 147 | 379 |
| 90MW0089C | 188 | 870338 | 250399 | -32.57 | 0 | 133 | 356 |
| 90MW0089D | 189 | 870339 | 250399 | -7.57 | 0 | 123 | 363 |
| 90MW0089E | 190 | 870345 | 250400 | 22.58 | 0 | 144 | 363 |
| 90MW0090A | 192 | 870194 | 250160 | -77.19 | 0 | 115 | 241 |
| 90MW0090B | 193 | 870194 | 250160 | -56.99 | 0 | 111 | 263 |
| 90MW0090C | 194 | 870192 | 250153 | -37.23 | 0 | 116 | 278 |
| 90MW0090D | 195 | 870192 | 250153 | -12.03 | 0 | 127 | 308 |
| 90MW0090E | 196 | 870190 | 250146 | 17.81 | 0 | 134 | 302 |
| 90MW0090F | 197 | 870190 | 250147 | 52.81 | 0 | 107 | 215 |
| 90MW0091C | 200 | 869199 | 249987 | -32.46 | 0 | 138 | 289 |
| 90PZ0202 | 204 | 867165 | 251853 | 66.14 | 0 | 120 | 404 |
| 90PZ0203 | 205 | 867199 | 251861 | 3.71 | 0 | 94 | 409 |
| 90PZ0204 | 206 | 867238 | 251857 | -7.88 | 0 | 140 | 301 |
| 90PZ0205 | 207 | 867239 | 251847 | 65.92 | 0 | 134 | 382 |
| 90PZ0206 | 208 | 867171 | 251830 | 2.49 | 0 | 111 | 409 |
| 90PZ0209 | 209 | 867133 | 252033 | 4.22 | 0 | 133 | 338 |
| 90PZ0211 | 210 | 867126 | 252123 | -20.48 | 0 | 128 | 272 |
| 90PZ0212 | 211 | 867136 | 252123 | 65.97 | 0 | 129 | 311 |
| 90WT0013 | 213 | 868411 | 254735 | 63.6 | 0 | 110 | 274 |
| **96SV0004** | 214 | 868197 | 254398 | 74.2 | 0.28 | 124 | 268 |

## Table G-15
## FS-12 Sampling Network With Results of Spatial Optimization for EDB Monitoring

| Sampling Location | Figure ID | Easting (ft) | Northing (ft) | Elevation (ft msl) | EDB (µg/L) | Global Kriging Weight | Number of Cells Influenced |
|---|---|---|---|---|---|---|---|
| 96SV0006 | 215 | 868534 | 254528 | 69.7 | 0 | 109 | 271 |
| **96SV0013** | 216 | 868258 | 254740 | 71.9 | 0.23 | 124 | 340 |
| ECMWSNP03D | 218 | 867997 | 251198 | -12.04 | 0 | 121 | 378 |
| 90RIW0009 | 222 | 868017 | 251399 | -20.83 | 0 | 139 | 385 |
| 90RIW0010 | 223 | 868124 | 251154 | -0.4 | 0 | 126 | 349 |
| 90RIW0027 | 225 | 869980 | 250757 | -24.92 | 0 | 112 | 409 |
| 90RIW0030 | 226 | 870166 | 251127 | -24.71 | 0 | 142 | 388 |

Data Source: Jacobs Engineering Group Inc., 28 June 2000, Site Environmental Evaluation (SEE) database

Notes:

Sampling locations in **boldface** are in-plume locations.

EDB = ethylene dibromide

ft msl = feet mean sea level

µg/L = micrograms per liter

**Table G-16**
**Comparison of Kriged FS-12 Plumes**
**Before and After Spatial Optimization**

| | Plume Shell from All FS-12 Data | Plume Shell After Spatial Optimization | Percent Change |
|---|---|---|---|
| **Aquifer volume with EDB > 0.02 µg/L** | $143.3 \times 10^6$ $ft^3$ | $125.4 \times 10^6$ $ft^3$ | -12% |
| **Aquifer volume with EDB > 1 µg/L** | $66.7 \times 10^6$ $ft^3$ | $60.4 \times 10^6$ $ft^3$ | -9% |
| **Aquifer volume with EDB > 5 µg/L** | $22.2 \times 10^6$ $ft^3$ | $21.0 \times 10^6$ $ft^3$ | -5% |
| **Total mass of EDB in groundwater** | 2.96 kg | 2.64 kg | -11% |
| **Maximum EDB concentration** | 23.4 µg/L | 24.1 µg/L | +3% |

Data Source: Jacobs Engineering Group Inc., 28 June 2000, Site Environmental Evaluation (SEE) database

EDB = ethylene dibromide
$ft^3$ = cubic feet
kg = kilograms
µg/L = micrograms per liter

# Table G-17
## Well-by-Well Summary of Spatial Optimization Studies for EDB Monitoring

| Well ID | Purpose | Retain in Sampling Network? | | | | Justification |
|---|---|---|---|---|---|---|
| | | SPEIM | Spatial Optimization | Particle Tracking | Recommen-dation | |
| 90EW0006 | Monitor extraction well concentrations | Yes | Yes | | Yes | |
| 90EW0007 | Monitor extraction well concentrations | Yes | Yes | | Yes | |
| 90EW0008 | Monitor extraction well concentrations | Yes | Yes | | Yes | |
| 90EW0009 | Monitor extraction well concentrations | Yes | Yes | | Yes | |
| 90EW0010 | Monitor extraction well concentrations | Yes | Yes | | Yes | |
| 90EW0011 | Monitor extraction well concentrations | Yes | Yes | | Yes | |
| 90EW0012 | Monitor extraction well concentrations | Yes | Yes | | Yes | |
| 90EW0013 | Monitor extraction well concentrations | Yes | Yes | | Yes | |
| 90EW0014 | Monitor extraction well concentrations | Yes | Yes | | Yes | |
| 90EW0015 | Monitor extraction well concentrations | Yes | Yes | | Yes | |
| 90EW0016 | Monitor extraction well concentrations | Yes | Yes | | Yes | |
| 90EW0017 | Monitor extraction well concentrations | Yes | Yes | | Yes | |
| 90EW0018 | Monitor extraction well concentrations | Yes | Yes | | Yes | |
| 90EW0019 | Monitor extraction well concentrations | Yes | Yes | | Yes | |
| 90EW0020 | Monitor extraction well concentrations | Yes | Yes | | Yes | |
| 90EW0021 | Monitor extraction well concentrations | Yes | Yes | | Yes | |
| 90EW0022 | Monitor extraction well concentrations | Yes | Yes | | Yes | |
| 90EW0023 | Monitor extraction well concentrations | Yes | Yes | | Yes | |
| 90EW0024 | Monitor extraction well concentrations | Yes | Yes | | Yes | |
| 90EW0025 | Monitor extraction well concentrations | Yes | Yes | | Yes | |
| 90EW0026 | Monitor extraction well concentrations | Yes | Yes | | Yes | |
| 90EW0027 | Monitor extraction well concentrations | Yes | Yes | | Yes | |
| 90EW0028 | Monitor extraction well concentrations | Yes | Yes | | Yes | |
| 90EW0029 | Monitor extraction well concentrations | Yes | Yes | | Yes | |
| 90EW0030 | Monitor extraction well concentrations | Yes | Yes | | Yes | |
| 90JB0001B | Plume definition in the vicinity of the JBT plume. | Yes | No | Yes | **No** | global kriging weight |
| 90JB0001C | Plume definition in the vicinity of the JBT plume. | Yes | Yes | Yes | Yes | |
| 90JB0001D | Plume definition in the vicinity of the JBT plume. | Yes | No | Yes | **No** | global kriging weight |
| 90JB0004A | Plume definition in the vicinity of the JBT plume. | Yes | Yes | Yes | Yes | |

## Table G-17
## Well-by-Well Summary of Spatial Optimization Studies for EDB Monitoring

| Well ID | Purpose | Retain in Sampling Network? SPEIM | Spatial Optimization | Particle Tracking | Recommen-dation | Justification |
|---|---|---|---|---|---|---|
| 90JB0004C | Plume definition in the vicinity of the JBT plume. | Yes | Yes | Yes | Yes | |
| 90JB0006B | Breakthrough/reinjection monitoring from southern reinjection fence. | Yes | Yes | Yes | Yes | |
| 90MP0059A | Horizontal groundwater flow and vertical gradient monitoring near Snake Pond. | No | Yes | | No | |
| 90MP0059B | Horizontal groundwater flow and vertical gradient monitoring near Snake Pond. | Yes | No | | **No** | global kriging weight |
| 90MP0059C | Horizontal groundwater flow and vertical gradient monitoring near Snake Pond. | No | Yes | | No | |
| 90MP0059D | Horizontal groundwater flow and vertical gradient monitoring near Snake Pond. | No | No | | No | |
| 90MP0059E | Horizontal groundwater flow and vertical gradient monitoring near Snake Pond. | No | No | | No | |
| 90MP0059F | Horizontal groundwater flow and vertical gradient monitoring near Snake Pond. | No | No | | No | |
| 90MP0060B | Plume definition monitoring near Snake Pond. | No | No | | No | |
| 90MP0060D | Plume definition monitoring near Snake Pond. | Yes | Yes | | Yes | |
| 90MP0060E | Plume definition monitoring near Snake Pond. | No | Yes | Yes | No | |
| 90MP0060F | Monitor water quality entering Snake Pond downgradient of ETR (study area). | No | No | | No | |
| 90MW0001 | Source area monitoring of FS-12. | Yes | No | Yes | **No** | global kriging weight |
| 90MW0002 | Source area monitoring of FS-12. | Yes | No | Yes | **No** | global kriging weight |
| 90MW0003 | Plume definition in the core of the plume. | Yes | No | Yes | **No** | global kriging weight |
| 90MW0005 | Plume definition, and flow in the core of the plume. | Yes | Yes | Yes | Yes | |
| 90MW0007 | Groundwater flow in the north-central portion of the plume. | Yes | No | Yes | **No** | global kriging weight |
| 90MW0009 | | No | No | | No | |
| 90MW0010 | Vertical gradients on the north side of Snake Pond. | No | No | | No | |
| 90MW0011 | Vertical gradients on the north side of Snake Pond. | No | No | | No | |
| 90MW0015 | Plume definition in the central portion of the plume. Vertical gradients and groundwater flow on the north side of Snake Pond. | Yes | Yes | Yes | Yes | |
| 90MW0017 | Groundwater flow in the north-central portion of the plume. | No | Yes | | No | |

**Table G-17**
**Well-by-Well Summary of Spatial Optimization Studies for EDB Monitoring**

| Well ID | Purpose | Retain in Sampling Network? SPEIM | Spatial Optimization | Particle Tracking | Recommen-dation | Justification |
|---|---|---|---|---|---|---|
| 90MW0020 | Plume definition in the central portion of the plume. | Yes | No | Yes | **No** | global kriging weight |
| 90MW0025 | Plume definition along the southern core of the plume. | Yes | Yes | Yes | Yes | |
| 90MW0027 | Plume definition in the northeast portion of the plume. | Yes | No | Yes | **No** | global kriging weight |
| 90MW0028 | Plume definition along the southeast portion of the plume. | Yes | Yes | Yes | Yes | |
| 90MW0033 | Plume definition along the eastern side of the plume. | Yes | No | Yes | **No** | global kriging weight |
| 90MW0034 | Source area monitoring of FS-12. | Yes | No | Yes | **No** | global kriging weight |
| 90MW0036 | Plume definition in the northeast portion of the plume. | Yes | No | Yes | **No** | global kriging weight |
| 90MW0040 | Plume definition at the southern edge of the core of the plume. | Yes | No | Yes | **No** | global kriging weight |
| 90MW0041 | Source area monitoring of FS-12. | Yes | No | Yes | **No** | global kriging weight |
| 90MW0042 | Plume definition in the southeastern edge of the plume. | Yes | Yes | Yes | Yes | |
| 90MW0049 | Groundwater flow on the north edge of Snake Pond. | No | No | | No | |
| 90MW0050 | Plume definition SW of the plume and NE of Snake Pond. | Yes | Yes | | Yes | |
| 90MW0053 | Plume definition along the southern extraction fence. | Yes | Yes | | Yes | |
| 90MW0054 | Groundwater flow west of the plume and north of Snake Pond. | No | No | | No | |
| 90MW0055 | Plume extent monitoring under the southern extraction fence. | Yes | No | Yes | **No** | global kriging weight |
| 90MW0056 | Plume extent monitoring under the southern extraction fence. | Yes | No | | **No** | global kriging weight |
| 90MW0064 | Breakthrough monitoring on the SE edge of the plume. | Yes | Yes | Yes | Yes | |
| 90MW0064A | Breakthrough monitoring on the SE edge of the plume. | Yes | Yes | Yes | Yes | |
| 90MW0066 | Breakthrough/reinjection monitoring along the southern reinjection fence. | Yes | No | Yes | **No** | global kriging weight |
| 90MW0066A | Breakthrough/reinjection monitoring along the southern reinjection fence. | Yes | Yes | Yes | Yes | |
| 90MW0068 | Breakthrough/reinjection monitoring along the southeast edge of the plume. | Yes | Yes | Yes | Yes | |
| 90MW0070 | Plume definition and extent along the west-central edge of the plume. | Yes | No | Yes | **No** | global kriging weight |

**Table G-17**
**Well-by-Well Summary of Spatial Optimization Studies for EDB Monitoring**

| Well ID | Purpose | Retain in Sampling Network? SPEIM | Spatial Optimization | Particle Tracking | Recommen-dation | Justification |
|---|---|---|---|---|---|---|
| 90MW0076 | Plume definition along the central axis. | Yes | Yes | Yes | Yes | |
| 90MW0077 | Breakthrough monitoring along the SE edge of the plume. | Yes | Yes | Yes | Yes | |
| 90MW0078 | Breakthrough monitoring along the southern edge of the plume. | Yes | Yes | | Yes | |
| 90MW0079A | Breakthrough monitoring along the southern extraction well fence. | No | No | | No | |
| 90MW0079B | Breakthrough monitoring along the southern extraction well fence. | Yes | Yes | | Yes | |
| 90MW0079C | Plume extent monitoring under the south extraction well fence. | Yes | No | | **No** | global kriging weight |
| 90MW0080 | Plume definition and extent along the west-central edge of the plume. | Yes | Yes | Yes | Yes | |
| 90MW0081 | Plume definition along the central axis. | No | No | Yes | No | |
| 90MW0083 | Breakthrough monitoring at southern reinjection fence. | No | No | Yes | No | |
| 90MW0084A | Breakthrough monitoring along the central axis. | Yes | Yes | Yes | Yes | |
| 90MW0084B | Breakthrough monitoring along the central axis. | No | Yes | Yes | No | |
| 90MW0085A | Reinjection impact monitoring near Snake Pond and downgradient of the southern reinjection well fence. | No | Yes | Yes | No | |
| 90MW0085B | Reinjection impact monitoring near Snake Pond and downgradient of the southern reinjection well fence. | No | No | Yes | No | |
| 90MW0086A | Monitoring for contaminants not captured by ETR system. | Yes | No | Yes | **No** | |
| 90MW0086B | Monitoring for contaminants not captured by ETR system. | Yes | No | Yes | **No** | |
| 90MW0086C | Monitoring for contaminants not captured by ETR system. | Yes | Yes | Yes | Yes | |
| 90MW0086D | Monitoring for contaminants not captured by ETR system. | Yes | No | Yes | **No** | |
| 90MW0087A | Monitoring for contaminants not captured by ETR system. | Yes | Yes | Yes | Yes | |
| 90MW0087B | Monitoring for contaminants not captured by ETR system. | Yes | Yes | Yes | Yes | |
| 90MW0088A | Monitoring for contaminants not captured by ETR system. | Yes | Yes | Yes | Yes | |
| 90MW0088B | Monitoring for contaminants not captured by ETR system. | Yes | Yes | Yes | Yes | |
| 90MW0089A | Monitoring for contaminants not captured by ETR system. | Yes | No | | **No** | |
| 90MW0089B | Monitoring for contaminants not captured by ETR system. | Yes | Yes | Yes | Yes | |
| 90MW0089C | Monitoring for contaminants not captured by ETR system. | Yes | Yes | Yes | Yes | |
| 90MW0089D | Monitoring for contaminants not captured by ETR system. | Yes | Yes | | Yes | |
| 90MW0089E | Monitoring for contaminants not captured by ETR system. | Yes | Yes | Yes | Yes | |
| 90MW0089F | Monitoring for contaminants not captured by ETR system. | Yes | No | Yes | **Yes** | breakthrough monitoring |
| 90MW0090A | Monitoring for contaminants not captured by ETR system. | Yes | Yes | Yes | Yes | |
| 90MW0090B | Monitoring for contaminants not captured by ETR system. | Yes | Yes | Yes | Yes | |

## Table G-17
## Well-by-Well Summary of Spatial Optimization Studies for EDB Monitoring

| Well ID | Purpose | Retain in Sampling Network? SPEIM | Spatial Optimization | Particle Tracking | Recommen-dation | Justification |
|---|---|---|---|---|---|---|
| 90MW0090C | Monitoring for contaminants not captured by ETR system. | Yes | Yes | | Yes | |
| 90MW0090D | Monitoring for contaminants not captured by ETR system. | Yes | Yes | | Yes | |
| 90MW0090E | Monitoring for contaminants not captured by ETR system. | Yes | Yes | Yes | Yes | |
| 90MW0090F | Monitoring for contaminants not captured by ETR system. | Yes | Yes | Yes | Yes | |
| 90MW0091A | Monitoring for contaminants not captured by ETR system. | Yes | No | | **No** | global kriging weight |
| 90MW0091B | Monitoring for contaminants not captured by ETR system. | Yes | No | | **No** | global kriging weight |
| 90MW0091C | Monitoring for contaminants not captured by ETR system. | Yes | Yes | Yes | Yes | |
| 90MW0091D | Monitoring for contaminants not captured by ETR system. | Yes | No | Yes | **No** | global kriging weight |
| 90MW0091E | Monitoring for contaminants not captured by ETR system. | Yes | No | Yes | **No** | global kriging weight |
| 90MW0091F | Monitoring for contaminants not captured by ETR system. | Yes | No | Yes | **No** | global kriging weight |
| 90PZ0202 | | No | Yes | | No | |
| 90PZ0203 | | No | Yes | | No | |
| 90PZ0204 | | No | Yes | | No | |
| 90PZ0205 | | No | Yes | | No | |
| 90PZ0206 | | No | Yes | | No | |
| 90PZ0209 | | No | Yes | | No | |
| 90PZ0211 | | No | Yes | | No | |
| 90PZ0212 | | No | Yes | | No | |
| 90RIW0006 | | No | No | | No | |
| 90RIW0009 | | No | Yes | | No | |
| 90RIW0010 | | Yes | Yes | | Yes | to be converted to an extraction well |
| 90RIW0014 | | No | No | | No | |
| 90RIW0027 | | No | Yes | | No | |
| 90RIW0030 | | No | Yes | | No | |
| 90WT0005 | | No | No | | No | |
| 90WT0013 | | No | Yes | | No | |

## Table G-17
## Well-by-Well Summary of Spatial Optimization Studies for EDB Monitoring

| Well ID | Purpose | Retain in Sampling Network? SPEIM | Spatial Optimization | Particle Tracking | Recommen-dation | Justification |
|---|---|---|---|---|---|---|
| 96MW0012 | Monitoring for contaminants not captured by ETR system. | Yes | | | Yes | |
| 96SV0004 | Source area monitoring of FS-12. | Yes | Yes | | Yes | |
| 96SV0006 | Source area monitoring of FS-12. | Yes | Yes | | Yes | |
| 96SV0013 | Source area monitoring of FS-12. | Yes | Yes | | Yes | |
| ECMWSNP01 | Monitoring crossgradient of treatment system. | No | No | | No | |
| ECMWSNP02D | Monitor water quality entering Snake Pond downgradient of ETR (study area). | Yes | not considered | Yes | Yes | |
| ECMWSNP02S | Monitor water quality entering Snake Pond downgradient of ETR (study area). | Yes | not considered | Yes | Yes | |
| ECMWSNP03D | Monitor water quality entering Snake Pond downgradient of ETR (study area). | Yes | Yes | | Yes | |
| ECMWSNP03S | Monitor water quality entering Snake Pond downgradient of ETR (study area). | Yes | No | | **No** | global kriging weight |
| ECPZSNP01 | Monitoring downgradient of treatment system. | No | No | | No | |

Note:
Shaded cells highlight recommendations that contrast with those of the ongoing SPEIM monitoring program for FS-12.
EDB = ethylene dibromide
ETR = extraction, treatment, reinjection
JBT = J. Braden Thompson
SPEIM = system performance and ecological impact monitoring

# APPENDIX H

# Well Logs for 2000 Monitoring Wells

**Jacobs Engineering Group Inc.**
MMR PLUME RESPONSE PROGRAM

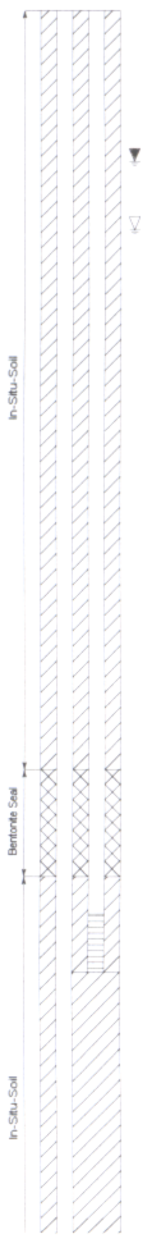
## LOC ID: 90MW0104AC

FS-12

| | | |
|---|---|---|
| Project Name: FS-12 | Location: Snake Pond, Sandwich, MA | |
| Project Number: 35Z01503 | Northing: A: 249019.21 C: 249019.49 | Easting: A: 868309.04 C: 868308.89 |
| Drilling Contractor: DRAGIN DRILLING | Elevation ft (MSL): A: 79.27 C: 79.23 | Measuring Point: Top of PVC |
| Drilling Equipment: CME-95 | Date Started: 04/30/01 | Date Finished: 05/11/01 |
| Drilling Method: Hollow Stem Auger | Total Depth Drilled ft (BGS): 173.00 | First Water ft (BGS): 19.4 |
| Sampling Method: Screened auger/pump | Borehole Diameter (in.): 10.00 | Well Diameter (in.): 2.50 |
| Const. Materials SCH 80 PVC | Well Depth ft (BGS): A: 144.00 C: 90.20 | Static Water ft (BTOC): 12.96 |
| Logged by: L. Pantermoller / Reviewed by: K. Gaynor, CGWP | Completion: Flushmount | Date Measured: 09/26/01 |

| Depth (ft-bgs) | Sample ID | Interval (ft.) | Headspace (ppm) | Purge Vol. (gal) | Purge Rate (gpm) | Temperature (c) | pH (units) | ORP (mV) | Conductivity (µS/cm) | Dissolved Oxygen (mg/L) | Turbidity (NTU) | Remarks | Elevation (ft msl) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | | | | | 80 |
| 5 | | | | | | | | | | | | | 75 |
| 10 | | | | | | | | | | | | | 70 |
| 15 | | | | | | | | | | | | | 65 |
| 20 | | | | | | | | | | | | | 60 |
| 25 | PA-I006101<br>PA-I006102 | ◄ ► | 0.0 | 108 | 6 | | | | | | | No sample taken. Problem with YSI. | 55 |
| 30 | | | | | | | | | | | | | 50 |
| 35 | PA-I006103<br>PA-I006104 | ◄ ► | 0.0 | 105 | 3 | 14.15 | 6.67 | 188.3 | 62 | 5.73 | 4.2 | Turbid, silty, cloudy, brown. | 45 |
| 40 | | | | | | | | | | | | | 40 |
| 45 | PA-I006201<br>PA-I006202<br>PA-I006203<br>PA-I006204 | ◄ ► | 0.0 | 120 | 10 | 14.21 | 5.94 | 197.9 | 60 | 2.92 | 4.9 | Field Duplicate | 35 |
| 50 | | | | | | | | | | | | | 30 |
| 55 | PA-I006205<br>PA-I006206 | ◄ ► | 0.0 | 150 | 10 | 14.17 | 5.71 | 208.2 | 58 | 4.09 | 5.2 | Sandy, brown. | 25 |
| 60 | | | | | | | | | | | | | 20 |
| 65 | PA-I006301<br>PA-I006302 | ◄ ► | 0.0 | 130 | 12 | 13.77 | 5.78 | 212.7 | 58 | 7.02 | 3.9 | Sandy, cloudy. | 15 |
| 70 | | | | | | | | | | | | | 10 |
| 75 | PA-I006401<br>PA-I006402 | ◄ ► | 0.0 | 121 | 11 | 13.32 | 7.43 | 262.4 | 66 | 17.82 | 14.2 | Turbid, brown, sandy. | 5 |
| 80 | | | | | | | | | | | | | 0 |
| 85 | PA-I006403<br>PA-I006404 | ◄ ► | 0.0 | 140 | 10 | 13.57 | 6.19 | 272.9 | 64 | 11.24 | 3.9 | Turbid, brown, sandy. | -5 |
| 90 | | | | | | | | | | | | | -10 |
| 95 | PA-I006501<br>PA-I006502 | ◄ ► | 0.0 | 165 | 11 | 13.49 | 5.92 | 293.6 | 63 | 4.93 | 3.3 | | -15 |
| 100 | | | | | | | | | | | | | -20 |
| 105 | PA-I006503<br>PA-I006504 | ◄ ► | 0.0 | 132 | 11 | 13.62 | 5.88 | 316.9 | 66 | 14.55 | 9.7 | | -25 |
| 110 | | | | | | | | | | | | | -30 |

Well Construction Diagram



**JE** Jacobs Engineering Group Inc.
MMR PLUME RESPONSE PROGRAM



## LOC ID: 90MW0104AC

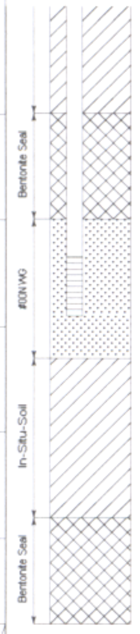
FS-12

Project Name: FS-12 | Location: Snake Pond, Sandwich, MA

Project Number: 35Z01503 | Northing: A: 249019.21 C: 249019.49 | Easting: A: 868309.04 C: 868308.89

| Depth (ft-bgs) | Sample ID | Interval (ft.) | Headspace (ppm) | Purge Vol. (gal) | Purge Rate (gpm) | Temperature (c) | pH (units) | ORP (mV) | Conductivity (µS/cm) | Dissolved Oxygen (mg/L) | Turbidity (NTU) | Remarks | Elevation (ft msl) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 115 | PA-I006601<br>PA-I006602 | ◄ ► | 0.0 | 143 | 11 | 14.11 | 6.28 | 303.0 | 66 | 16.82 | 14.9 | | -35 |
| 120 | | | | | | | | | | | | | -40 |
| 125 | PA-I006603<br>PA-I006604 | ◄ ► | 0.0 | 150 | 10 | 13.74 | 6.03 | 326.4 | 84 | 10.51 | 8.6 | Cloudy, tan. | -45 |
| 130 | | | | | | | | | | | | | -50 |
| 135 | PA-I006701<br>PA-I006702 | ◄ ► | 0.0 | 154 | 11 | 15.23 | 5.86 | 318.1 | 69 | 15.08 | 14.1 | Cloudy, tan. | -55 |
| 140 | | | | | | | | | | | | | -60 |
| 145 | | ◄ ► | | | | | | | | | | No sample recovery. | -65 |
| 150 | | | | | | | | | | | | | -70 |
| 155 | PA-I006801<br>PA-I006802 | ◄ ► | 0.0 | 105 | 3 | 15.29 | 6.41 | 294.7 | 85 | 9.08 | 1371.0 | Dark, silty, gray. | -75 |
| 160 | | | | | | | | | | | | | -80 |
| 165 | PA-I006803<br>PA-I006804 | ◄ ► | 0.0 | 110 | 2 | 16.23 | 6.57 | 159.9 | 68 | 7.30 | 884.8 | Gray, silty, cloudy, turbid. | -85 |
| 170 | | | | | | | | | | | | | -90 |
| 175 | | ◄ ► | | | | | | | | | | Bottom of Boring @ 173 ft. bgs | -95 |
| 180 | | | | | | | | | | | | | -100 |
| 185 | | | | | | | | | | | | | -105 |
| 190 | | | | | | | | | | | | | -110 |
| 195 | | | | | | | | | | | | | -115 |
| 200 | | | | | | | | | | | | | -120 |
| 205 | | | | | | | | | | | | | -125 |

Well Construction Diagram




Notes:
1. Well Depth
A: 144.00 ft. bgs
C: 90.20 ft. bgs
2. SCH 80 PVC Screens
3. Screen length
A: 5.00 feet
C: 5.00 feet
4. Screen Interval
A: 138.40 - 143.40 ft. bgs
C: 84.81 - 89.81 ft. bgs
5. Slot Size 0.010 in.

Printed on 10/16/01

JE **Jacobs Engineering Group Inc.**

MMR PLUME RESPONSE PROGRAM

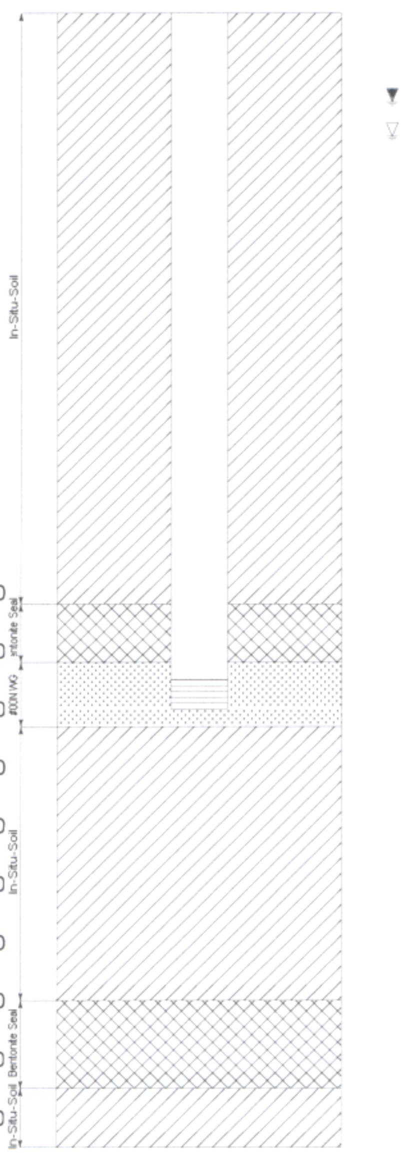


FS-12

## LOC ID: 90MW0104B

| | | |
|---|---|---|
| Project Name: FS-12 | Location: Snake Pond, Sandwich, MA | |
| Project Number: 35Z01503 | Northing: 249025.22 | Easting: 868307.96 |
| Drilling Contractor: DRAGIN DRILLING | Elevation ft (MSL): 79.35 | Measuring Point: Top of PVC |
| Drilling Equipment: CME-95 | Date Started: 05/07/01 | Date Finished: 05/11/01 |
| Drilling Method: Hollow Stem Auger | Total Depth Drilled ft (BGS): 195.00 | First Water ft (BGS): 19.0 |
| Sampling Method: No soil collected | Borehole Diameter (in.): 8.00 | Well Diameter (in.): 2.50 |
| Const. Materials SCH 80 PVC | Well Depth ft (BGS): 120.00 | Static Water ft (BTOC): 13.10 |
| Logged by: L. Pantermoller / Reviewed by: K. Gaynor, CGWP | Completion: Flushmount | Date Measured: 09/26/01 |

| Depth (ft. bgs) | Well Construction Diagram | USCS Class | Lithologic Description and Associated Lithographic Symbol | Elev. (ft msl) |
|---|---|---|---|---|




No samples taken, burndown location only.

Notes:
1. Well Depth 120.00 ft. bgs
2. SCH 80 PVC
3. Screen length 5.00 feet
4. Screen Interval 115.00 - 120.00 ft. bgs
5. Slot Size 0.010 in.

Printed on 10/16/01

# MMR WATER SAMPLE LOG

JE

Sheet: 1 Of: 1
Boring ID No: 90MW0104A
Project Name: FS-12 Sparim
Borehole Dia: 6.25"
Date Started: 4/30/01
Project Number: 35701503
Drill Type: ~~[illegible]~~ HSA
Date Completed: 5/2/01
Location:
Drill Rig and Model: CME 95
Coordinates: N: E:
Sampling Tool: Submersible pump
Ground Elevation:
Drilling Company: Dragin Drilling
Depth to Static Water: —
Name of Driller: Brett Swiatek
Depth to First Water: 144 bgs
Geologist: Lisa Pantermoller
Total Depth of Boring: 172.0' bgs
LTC Code:
LTR Code:

| DEPTH | Sample ID or Control No. | Sample Interval (ft/bgs) | PID/FID (ppm) | Purge Vol (gal) | Purge Rate (gpm) | Temp. (C) | Conductivity (µS/cm) | Dissolved O2 (mg/L) | pH (units) | ORP (mV) | Turbidity (NTU) | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30* | PA-I006001, 02EO PA-I006101, 02 | 25-30 | 0.0/0.0 FID | 108 | 6.0 No Reading - problem w/ YSI | | | | | | | 4/30/01 Medium Sand Chi Cloudy - water FID |
| 40 | PA-I006103, 04 | 35-40 | 0.0/0.0 FID | 105 | 2.5 | 14.15 | 62.00 | 5.73 | 6.67 | 198.3 | 4.2 | 4/30/01 Turbid water Silty/Cloudy - brown FID |
| 50 | PA-I006201, 02 03, 04 (FD) | 45-50 | 0.0/0.0 | 120 | 10.0 | 14.21 | 60.00 | 2.92 | 5.94 | 197.9 | 4.9 | 4/30/01 Sandy Brown - water FID |
| 60 | PAI006205, 06 | 55-60 | 0.0/0.0 | 150 | 10.0 | 14.17 | 58.00 | 4.09 | 5.71 | 208.2 | 5.2 | 4/30/01 Sandy Brown - Water FID |
| 70 | PA-I006301, 02 | 65-70 | 0.0/0.0 | 130 | 12.0 | 13.77 | 58.00 | 7.02 | 5.78 | 212.7 | 3.9 | 4/30/01 Sandy Cloudy - tan - water FID |
| 80* | PA-I006401, 02 | 75-80 | 0.0/0.0 | 121 | 11.0 | 13.32 | 66.00 | 17.82 | 7.43 | 262.4 | 14.2 | 5/1/01 water Turbid Brown Sand FID |
| 90 | PA-I006403, 04 | 85-90 | 0.0/0.0 | 140 | 10.0 | 13.57 | 64.00 | 11.24 | 6.19 | 272.9 ~~295.6~~ | 3.9 | 5/1/01 FID 4.1/ Turbid Brown - Sandy |
| 100 | PA-I006501, 02 MS/MSD | 95-100 | 0.0/0.0 | 165 | 11.0 | 13.49 | 65.00 | 4.93 | 5.92 | 293.6 ~~316.9~~ | 3.3 | 5/1/01 FID — Veryfine Brown sand |
| 110 | PA-I006503, 04 | 105-110 | 0.0/0.0 | 132 | 11.0 | 13.62 | 66.00 | 14.55 | 5.88 | 316.9 ~~303.0~~ | 9.7 | 5/1/01 FID 0.8/0.7 sandy-possible fine |
| 120 | PA-I006601, 02 | 115-120 | 0.0/0.0 | 143 | 11.0 | 14.11 | 66.00 | 16.87 | 6.28 | 303.0 ~~326.4~~ | 14.9 | 5/1/01 FID 1.3/1.0 Cloudy to Clear |
| 130 | PA-I008301, 02 FD PA-I006603, 04 | 125-130 | 0.0/0.0 | 150 | 10.0 | 13.74 | 64.00 | 10.51 | 6.03 | 326.4 ~~316.1~~ | 8.6 | 5/1/01 FID 0.0/0.0 Cloudy tan |
| 140 | PA-I006701, 02 | 135-140 | 0.0/0.0 | 154 | 11.0 | 15.23 | 69.00 | 15.05 | 5.86 | 315.1 | 14.1 | 5/1/01 FID 0.0/0.0 Cloudy tan |
| 150 | PA-I006703, 04 | 145-150 | — No Recovery | | | | | | | | | FID 0.0/0.0 |
| 160 | PA-I006801, 02 | 155-160 | 0.0/0.0 | 105 | 3.0 | 15.29 | 85.00 | 9.08 | 6.41 | 294.7 | 1371.0 | 5/1/01 Dark Silty-Gray FID |
| 170 | PA-I006803, 04 | 165-170 | 0.0/0.0 | 110 | 2.0 | 16.23 | 68.00 | 7.30 | 6.57 | 159.9 | 884.8 | 5/1/01 Gray Silty-Cloudy Turbid FID |

*Hit refusal @ 173' bgs.

* All soil cuttings appear to be (SP) poorly sorted medium to fine grained sand

* Auger @ 160 cuttings showed finer material - Fine sand

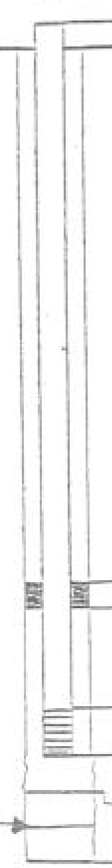
# WELL CONSTRUCTION DIAGRAM

Project Name: FS-12 Swim
Project Number: 35201503
Loc. I.D.: 90MW0104B
Drilling Contractor: Dragin Drilling
Drilling Equipment: CME 95
Drilling Method: SHSA
Sampling Method: Submersible pump
Geologist Name: Lisa Pantermoller

Location: Snake Pond
Date Started: 5/7/01
Date Finished: 5/11/01
Construction Material: Sch 80 pvc
Borehole Diameter: 4.25"
Well Diameter: 2.5"
Piezometer Diameter: None
Screen Interval: 115-120
Screen Slot Size: 0.010"
Type of Filter Pack: #00N Sand
Well Completion:
Flushmount ☒
Above Ground ☐

## Single Setting

B



Length of Stickup above Ground Surface Ø

Depth to Top of Bentonite Seal 102' bgs
Depth to Top of Filter Pack 112' bgs
Depth to Top of Screen 115' bgs
Depth to Bottom of Screen 120' bgs
Depth to Bottom of Filter Pack 123' bgs
Depth to Bottom of Borehole 195' bgs

Bentonite Seal 170-185'

Comments: * Bentonite @ 170-185' bgs

JE JACOBS ENGINEERING

# APPENDIX I

# Fuel Spill-12 and Snake Pond Area Plume Shell Development

# FS-12 AND SNAKE POND AREA PLUME SHELL DEVELOPMENT

Containment plume shells provide a convenient mechanism for visualizing plumes in three dimensions (3-D) as well as initializing groundwater models for running contaminant transport simulations. The plume shell for FS-12 was revised to assess remedial system performance requirements and to aid in system performance optimization. The steps involved in creating the plume shell are to first compile a dataset of the most recent groundwater sampling results. Next, the scattered field measurements of contaminant concentrations are interpolated to a 3-D plume shell grid. To perform this task, a geostatistical interpolation method called kriging was chosen. The interpolated grid concentrations are visualized using wire-net isosurfaces drawn for several concentrations. Next, the plume shell is masked to eliminate unreasonable extensions of the kriged concentrations into areas with no data coverage. Finally, the kriged concentrations are scaled to make the interpolated grid concentrations match the contaminant data set. This approach has been utilized to establish plume shells for other Massachusetts Military Reservation (MMR) plumes including Chemical Spill-10, Landfill-1, Ashumet Valley, Chemical Spill-19, and Southwest Operable Unit (SWOU) plumes. These steps are described in more detail below.

## EDB DATA SET

The Jacobs Engineering Group Inc. Site Environmental Evaluation (SEE) database was queried for all ethylene dibromide (EDB) groundwater sample results within a northing range from 249,500 to 255,200 feet and an easting range from 867,000 to 870,850 feet, with a sampling date more recent than or equal to May 1999. The data included groundwater samples collected from wells, drive points, piezometers, and boreholes (borehole screening samples collected during drilling), up to a sampling date of 31 May 2000. In addition, EDB data collected in the vicinity of Snake Pond, from as far back as March 1993, were added to create a separate Snake Pond area data set. The resulting conceptualization and plume shell was superceded in the fall and winter of 2000 as new data became available. In order to support particle tracking modeling, particle seed sets were developed. The development of these seed sets is described in Appendix F. The

Snake Pond area data were migrated at a rate of 1 ft/day (for the number of days between the sampling date and 26 July 2000) in the prevailing groundwater flow direction to provide estimated groundwater EDB concentrations in areas with little to no data coverage. From these two data sets, the most recent non-rejected EDB results were selected for each location and sample depth to create the final two data sets for the FS-12 plume and the Snake Pond area used for this task. Sample elevations for wells were taken as the midpoint of the well screen interval. A zero result was substituted for all nondetects for EDB.

The FS-12 plume data set had 226 sample points with a maximum EDB concentration of 31 micrograms per liter (µg/L) at well 90EW0012. The Snake Pond area plume data set had 101 sample points with a maximum EDB concentration of 1.15 µg/L at well ECMWSNP02D.

A separate plume shell and particle seed set representing the contamination in the Snake Pond area was used for particle tracking and capture performance evaluations in the FS-12 model. This plume shell was developed and refined as additional sampling results became available after May 2000. A further description of the development of the plume shell and particle seed set used for system performance evaluations is included in Appendix F.

**INTERPOLATION OF EDB CONCENTRATIONS TO A 3-D GRID**

The two data sets were posted using GMS (Groundwater Modeling System, Version 2.1) (Environmental Modeling Systems, Inc. 1999). A 3-D cell-centered uniform grid with no rotation was created in GMS to encompass each data set. The origin of the FS-12 grid was set at the coordinates 867,000 feet (easting), 249,500 feet (northing), and -90 feet mean sea level (ft msl) (elevation). The grid extended 3,850 feet to the east (55 cells), 5,700 feet to the north (82 cells), and 180 feet in the vertical direction (36 cells). The cell grid dimensions were 70 feet by 70 feet by 5 feet thick. The origin of the Snake Pond area grid was set at the coordinates 867,228 feet (easting), 250,723 feet (northing), and -60 ft msl (elevation). The grid extended 1,006 feet to the east (41 cells), 1,567 feet to

the north (63 cells), and 140 feet in the vertical direction (35 cells). The cell grid dimensions were 25 feet by 25 feet by 4 feet thick.

The EDB concentrations from the sampling data were interpolated to the two GMS 3-D grids using the kriging interpolation module in GMS. Nomenclature of kriging parameters in the following discussion follows GMS usage. At each grid cell, weights are determined for all of the data points within the search radius, and the weighted average is calculated. The weighting factors are estimated from the statistical structure of the data, as summarized in the semivariogram, combined with knowledge of the site hydrology and expected contaminant behavior.

Ordinary kriging was used to interpolate EDB concentrations, with results truncated to the minimum and maximum values in the two data sets. A spherical model function was used, and the nugget effect was set to zero. The GMS kriging parameters used for the two data sets are shown in Table I-1.

**Table I-1**
**GMS Kriging Parameters**

| Data Set | Contribution | Range | Horizontal Anisotropy | Vertical Anisotropy | Azimuth | Dip | Search Radius |
|---|---|---|---|---|---|---|---|
| FS-12 | 24.451 | 1635 | 0.5 | 0.020 | 170 | 0 | 625 |
| Snake Pond | 0.073 | 322 | 0.4 | 0.03 | 180 | 0 | 225 |

The kriging process involves extracting an experimental variogram from the data set and then fitting a model variogram to the experimental variogram. The experimental variogram, which is a plot of concentration variance versus lag distance, was calculated from all possible pairings of EDB concentrations. The pairings were grouped into intervals of constant "lag distance." For a given lag distance, the variance is essentially the average squared difference in EDB concentration for all pairs of observations within the lag interval. The azimuth, dip angle, and unit lag separation distance were adjusted to extract the most reasonable experimental variogram per data set.

Model variograms were fitted to the experimental variograms by adjusting the range and contribution, and horizontal and vertical anisotropy. Measurements from locations separated by a distance equal to or greater than the range are essentially uncorrelated. The range may thus be interpreted to be the distance at which there is no redundancy, no “overlap” between the samples. Another way to visualize the significance of the range is to think of it as the radius of a “sphere of influence” that encloses a volume around the measurement location in which the measurement has some influence on the estimated concentration. This influence is high adjacent to the measurement location and declines to a low value at the edge of the sphere of influence. Outside its sphere of influence, the weight associated with a measurement is low but constant. The contribution (sill value) is the maximum variance calculated for the lag intervals. The horizontal and vertical anisotropy turn the sphere of influence into an ellipsoid that is elongated in the direction of groundwater flow. Use of anisotropy results in a large range parallel to groundwater flow, with much shorter ranges in the transverse and vertical directions.

The kriging search radius controls the distance out from each grid cell that GMS searches for data points to average (using the chosen variogram model and associated weighting factors) and thus arrive at an interpolated EDB concentration value for each grid cell. Artificial detections were added to the data set in areas were the data density was sparse. This was necessary because widely spaced data require a large search radius to encompass the data points and produce a contiguous plume. A large kriging search radius has two drawbacks. The first is that plume areas with a relatively high data density will loose plume shell detail because data points within the search radius will be averaged according to the chosen kriging model. The second drawback is that the larger the search radius the larger the extension of the plume into other areas of no data coverage, producing a hydrologically implausible plume shell. Thus, in order to allow GMS to use a smaller search radius and restrict the plume to reasonable dimensions, artificial detections were used to bridge the gaps between widely spaced data points. The artificial EDB concentrations were either linearly interpolated by hand in 3-D from the closest real data points or taken from hand-drawn EDB plume contours.

## WIRE-NET ISOSURFACES

The interpolated EDB concentrations were contoured and visualized using wire-net isosurfaces drawn by GMS. The kriging process was adjusted until the two resulting plume shells fit the known data as closely as possible and were hydrologically plausible. The 0.02 µg/L EDB isosurface was considered to be the plume boundaries.

## PLUME SHELL MASKING

A mask was created for each plume shell to eliminate artifacts of the kriging process that would otherwise produce hydrologically unreasonable extensions of a plume into areas with no data coverage. The mask is the plan view of the maximum lateral extent of contamination present at the EDB maximum contaminant level of 0.02 µg/L. It contains values of one within a plume and values of zero elsewhere. The mask was mapped onto the 3-D grid via the MT3D initial-concentration array, and then converted into a GMS ASCII data set. The corresponding interpolated concentrations were also converted to a GMS ASCII data set. A small proprietary computer program (Addmask, Jacobs 1999) was used to step through the two data sets simultaneously; it retained the interpolated concentration value when the mask value was one, and set the concentration to zero when the mask value was zero. The masked concentration array was then imported back into GMS for visualization as a series of isosurfaces.

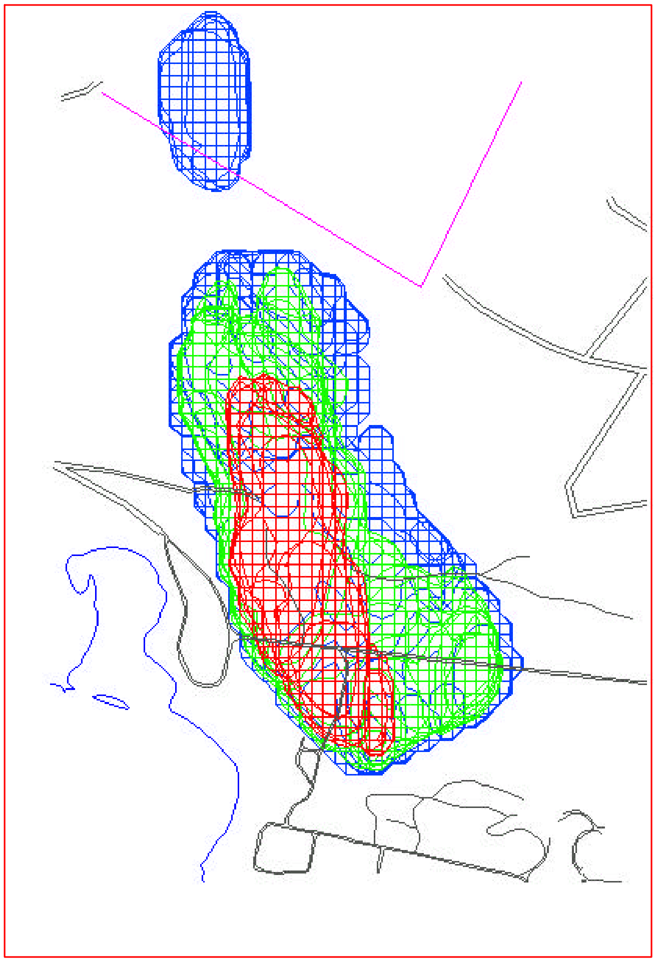
## PLUME SHELL SCALING

Because of the averaging effect of the kriging process, the maximum interpolated EDB concentrations were generally less than the maximum EDB data point concentrations. To offset this tendency, a conservative approach has been used here, in which, after kriging and masking, all of the interpolated values are scaled by the ratio of the highest observed value to the highest interpolated value. This forces a match between the highest observed and interpolated values, but probably tends to overestimate the mass of the plume.

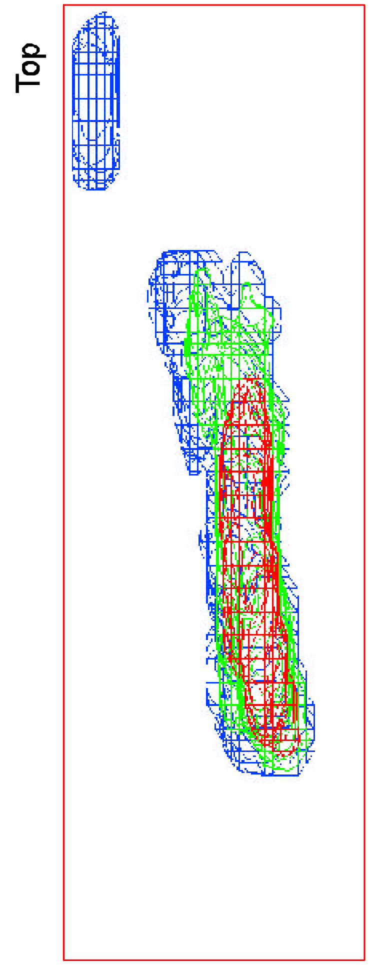
The FS-12 and Snake Pond area plumes, had interpolated concentrations equal to 72 and 70 percent of the data point concentrations, respectively. Since the plumes had

interpolated concentrations equal to at least 70 percent of the data point concentrations, the plume masses were probably overestimated by less than 30 percent.

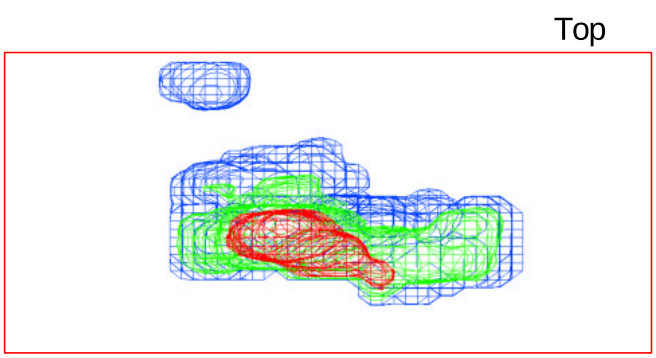
The resulting FS-12 and Snake Pond area EDB plume shells are shown in Figures I-1 and I-2 with the 0.02, 1, and 5 µg/L isosurfaces displayed for FS-12, and the 0.02, 0.4, and 0.7 µg/L isosurfaces displayed for the Snake Pond area. The volume of groundwater in the FS-12 and Snake Pond area plumes with EDB concentrations greater than 0.02 µg/L is 5.013E+7 and 1.911E+6 cubic feet, respectively. The mass of dissolved EDB in the FS-12 and Snake Pond area plumes is 3.967 and 0.0086 kilograms, respectively. The accuracy of this estimate is based on the number of locations with EDB observations and the magnitude and the number of the cells used in the kriging procedure. Process knowledge and sensitivity analysis of other plumes within the MMR have indicated an estimated error of plus/minus 25 percent. The accuracy of this estimate is based upon the number of locations with EDB observations, the magnitude and the number of the cells used in the kriging procedure. Process knowledge and sensitivity analysis of other plumes within the MMR has indicated an estimated error of plus/minus 25 percent. The Snake Pond area EDB plume shell was superceded in the fall and winter 2000 as new data were collected (Appendix F).



**Plan View**




**View to West**




**View to North**

Legend

Plumeshellhasbeenscaled
andmasked

DarkBlueisosurfaceis0.02µg/L
Greenisosurfaceis1.0µg/L
Redisosurfaceis5.0µg/L

N

0 1200

Scale in Feet
VerticalExaggeration=10X

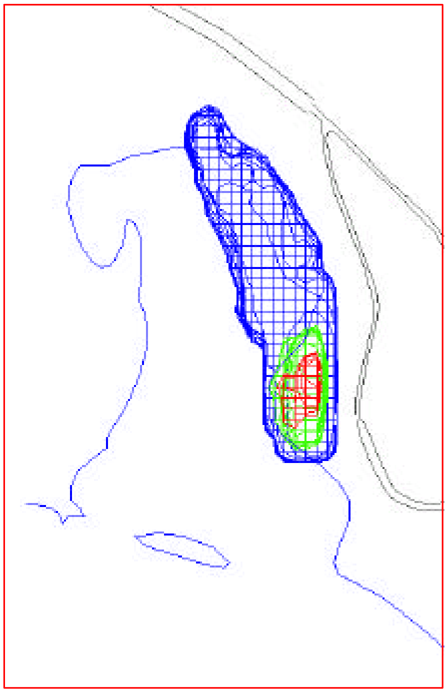
JACOBSENGINEERING

FS-12 Current EDB Kriged Plume Shell From GMS

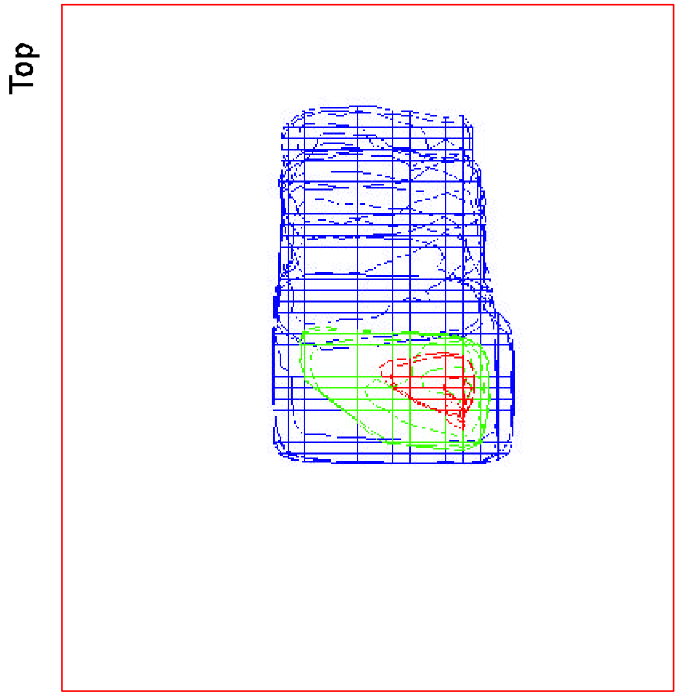
MassachusettsMilitaryReservation
CapeCod,Massachusetts

8/03/00pcfs12_current_plume.cdr

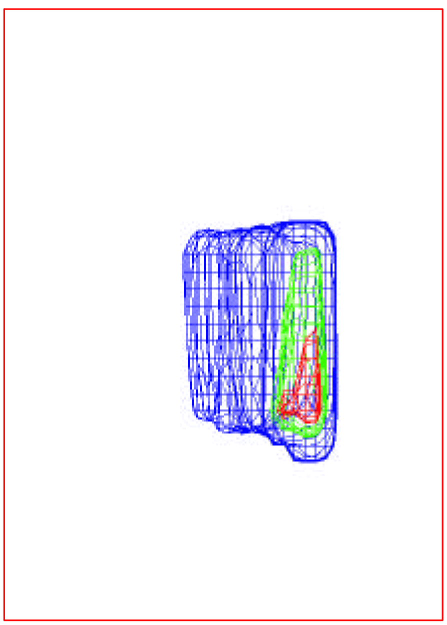
Figure I-1



**Plan View**




**View to West**




**View to North**

Legend

Plumeshellhasbeenscaledandmasked

Darkblueisosurfaceis0.02µg/L
Greenisosurfaceis0.4 µg/L
Redisosurfaceis0.7 µg/L

Allresultshavebeenmigratedat
arateof1.0ft/dayandanazimuthof
180degreestosimulateasample
dateof7/26/00

N

0 500

Scale in Feet

VerticalExaggeration=10X

JACOBSENGINEERING

Snake Pond Area EDB
Plume Shell From GMS

MassachusettsMilitaryReservation
CapeCod,Massachusetts

3/30/01pcsnake_shell_3v.cdr

Figure I-2

# APPENDIX J

## Statistics

**(Available on Request)**

## Descriptive Statistics Report

Page/Date/Time 1 04-03-2001 14:22:40
Database I:\35Z01503\FS-12 SPEIM\Asse ... \Direct Impact Monitoring.S0

**Summary Section of Alkalinity when Class=Effluent**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 5 | 16.52 | 1.617714 | 0.7234639 | 14.7 | 18.4 | 3.7 |

**Counts Section of Alkalinity when Class=Effluent**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 10 | 5 | 0 | 5 | 82.6 | 1375.02 | 10.468 |

**Means Section of Alkalinity when Class=Effluent**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 16.52 | 16.9 | 16.45603 | 16.39175 | 82.6 | 14.7 |
| Std Error | 0.7234639 | | | | 3.617319 | |
| 95% LCL | 14.51134 | | | | 72.55671 | |
| 95% UCL | 18.52866 | | | | 92.64329 | |
| T-Value | 22.8346 | | | | | |
| Prob Level | 0.000022 | | | | | |
| Count | 5 | | 5 | 5 | | 1 |

**Summary Section of Alkalinity when Class=Influent**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 5 | 8.75 | 3.144837 | 1.406414 | 5.4 | 12.7 | 7.3 |

**Counts Section of Alkalinity when Class=Influent**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 10 | 5 | 0 | 4 | 43.75 | 422.3725 | 39.56 |

**Means Section of Alkalinity when Class=Influent**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 8.75 | 10 | 8.272737 | 7.801328 | 43.75 | 10 |
| Std Error | 1.406414 | | | | 7.032069 | |
| 95% LCL | 4.845169 | | | | 24.22585 | |
| 95% UCL | 12.65483 | | | | 63.27415 | |
| T-Value | 6.2215 | | | | | |
| Prob Level | 0.003398 | | | | | |
| Count | 5 | | 5 | 5 | | 2 |

**Summary Section of Nitrogen when Class=Effluent**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 5 | 64.52 | 14.97905 | 6.698836 | 48.1 | 89.1 | 41 |

## Descriptive Statistics Report

Page/Date/Time 2 04-03-2001 14:22:40
Database I:\35Z01503\FS-12 SPEIM\Asse ... \Direct Impact Monitoring.S0

**Counts Section of Nitrogen when Class=Effluent**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 10 | 5 | 0 | 4 | 322.6 | 21711.64 | 897.488 |

**Means Section of Nitrogen when Class=Effluent**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 64.52 | 62.3 | 63.23835 | 62.06287 | 322.6 | 62.3 |
| Std Error | 6.698836 | | | | 33.49418 | |
| 95% LCL | 45.92105 | | | | 229.6053 | |
| 95% UCL | 83.11895 | | | | 415.5948 | |
| T-Value | 9.6315 | | | | | |
| Prob Level | 0.000650 | | | | | |
| Count | 5 | | 5 | 5 | | 2 |

**Summary Section of Nitrogen when Class=Influent**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 5 | 70.36 | 34.79947 | 15.5628 | 31.3 | 115 | 83.7 |

**Counts Section of Nitrogen when Class=Influent**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 10 | 5 | 0 | 5 | 351.8 | 29596.66 | 4844.012 |

**Means Section of Nitrogen when Class=Influent**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 70.36 | 54.4 | 63.32238 | 56.7611 | 351.8 | 31.3 |
| Std Error | 15.5628 | | | | 77.81398 | |
| 95% LCL | 27.15075 | | | | 135.7538 | |
| 95% UCL | 113.5692 | | | | 567.8463 | |
| T-Value | 4.5210 | | | | | |
| Prob Level | 0.010650 | | | | | |
| Count | 5 | | 5 | 5 | | 1 |

**Summary Section of Nitrate when Class=Effluent**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 5 | 45.16 | 22.63632 | 10.12327 | 13.6 | 68.7 | 55.1 |

**Counts Section of Nitrate when Class=Effluent**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 10 | 5 | 0 | 5 | 225.8 | 12246.74 | 2049.612 |

## Descriptive Statistics Report

Page/Date/Time 3 04-03-2001 14:22:40
Database I:\35Z01503\FS-12 SPEIM\Asse ... \Direct Impact Monitoring.S0

**Means Section of Nitrate when Class=Effluent**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 45.16 | 41.8 | 39.21311 | 32.28981 | 225.8 | 13.6 |
| Std Error | 10.12327 | | | | 50.61635 | |
| 95% LCL | 17.0533 | | | | 85.26648 | |
| 95% UCL | 73.2667 | | | | 366.3335 | |
| T-Value | 4.4610 | | | | | |
| Prob Level | 0.011152 | | | | | |
| Count | 5 | | 5 | 5 | | 1 |

**Summary Section of Nitrate when Class=Influent**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 5 | 56.38 | 9.97181 | 4.459529 | 42.1 | 67 | 24.9 |

**Counts Section of Nitrate when Class=Influent**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 10 | 5 | 0 | 5 | 281.9 | 16291.27 | 397.748 |

**Means Section of Nitrate when Class=Influent**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 56.38 | 58.8 | 55.62836 | 54.83696 | 281.9 | 42.1 |
| Std Error | 4.459529 | | | | 22.29765 | |
| 95% LCL | 43.99836 | | | | 219.9918 | |
| 95% UCL | 68.76163 | | | | 343.8082 | |
| T-Value | 12.6426 | | | | | |
| Prob Level | 0.000225 | | | | | |
| Count | 5 | | 5 | 5 | | 1 |

**Summary Section of Phosphorus when Class=Effluent**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 5 | 25.92 | 5.593031 | 2.50128 | 17.3 | 30.5 | 13.2 |

**Counts Section of Phosphorus when Class=Effluent**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 10 | 5 | 0 | 5 | 129.6 | 3484.36 | 125.128 |

**Descriptive Statistics Report**

Page/Date/Time 4 04-03-2001 14:22:40
Database I:\35Z01503\FS-12 SPEIM\Asse ... \Direct Impact Monitoring.S0

**Means Section of Phosphorus when Class=Effluent**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 25.92 | 27.9 | 25.37338 | 24.76712 | 129.6 | 17.3 |
| Std Error | 2.50128 | | | | 12.5064 | |
| 95% LCL | 18.97533 | | | | 94.87667 | |
| 95% UCL | 32.86467 | | | | 164.3233 | |
| T-Value | 10.3627 | | | | | |
| Prob Level | 0.000490 | | | | | |
| Count | 5 | | 5 | 5 | | 1 |

**Summary Section of Phosphorus when Class=Influent**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 5 | 30.18 | 1.994242 | 0.891852 | 27.5 | 32.1 | 4.6 |

**Counts Section of Phosphorus when Class=Influent**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 10 | 5 | 0 | 5 | 150.9 | 4570.07 | 15.908 |

**Means Section of Phosphorus when Class=Influent**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 30.18 | 30.6 | 30.12649 | 30.07226 | 150.9 | 27.5 |
| Std Error | 0.891852 | | | | 4.45926 | |
| 95% LCL | 27.70382 | | | | 138.5191 | |
| 95% UCL | 32.65618 | | | | 163.2809 | |
| T-Value | 33.8397 | | | | | |
| Prob Level | 0.000005 | | | | | |
| Count | 5 | | 5 | 5 | | 1 |

**Summary Section of Phosphate when Class=Effluent**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 5 | 23.54 | 3.739385 | 1.672304 | 18.5 | 27.1 | 8.6 |

**Counts Section of Phosphate when Class=Effluent**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 10 | 5 | 0 | 5 | 117.7 | 2826.59 | 55.932 |

**Means Section of Phosphate when Class=Effluent**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 23.54 | 24.8 | 23.29058 | 23.03195 | 117.7 | 18.5 |
| Std Error | 1.672304 | | | | 8.361519 | |
| 95% LCL | 18.89694 | | | | 94.4847 | |
| 95% UCL | 28.18306 | | | | 140.9153 | |
| T-Value | 14.0764 | | | | | |
| Prob Level | 0.000148 | | | | | |
| Count | 5 | | 5 | 5 | | 1 |

**Summary Section of Phosphate when Class=Influent**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 5 | 26.66 | 1.451895 | 0.6493073 | 25.6 | 29.2 | 3.6 |

**Counts Section of Phosphate when Class=Influent**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 10 | 5 | 0 | 5 | 133.3 | 3562.21 | 8.432 |

**Means Section of Phosphate when Class=Influent**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 26.66 | 26.2 | 26.62966 | 26.60058 | 133.3 | 25.6 |
| Std Error | 0.6493073 | | | | 3.246537 | |
| 95% LCL | 24.85723 | | | | 124.2862 | |
| 95% UCL | 28.46277 | | | | 142.3138 | |
| T-Value | 41.0591 | | | | | |
| Prob Level | 0.000002 | | | | | |
| Count | 5 | | 5 | 5 | | 1 |

**Summary Section of Temperature when Class=Effluent**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 5 | 11.102 | 0.905301 | 0.4048629 | 10.46 | 12.69 | 2.23 |

**Counts Section of Temperature when Class=Effluent**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 10 | 5 | 0 | 5 | 55.51 | 619.5503 | 3.27828 |

# Descriptive Statistics Report

Page/Date/Time 6 04-03-2001 14:22:40
Database I:\35Z01503\FS-12 SPEIM\Asse ... \Direct Impact Monitoring.S0

**Means Section of Temperature when Class=Effluent**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 11.102 | 10.76 | 11.07424 | 11.0482 | 55.51 | 10.46 |
| Std Error | 0.4048629 | | | | 2.024315 | |
| 95% LCL | 9.977921 | | | | 49.8896 | |
| 95% UCL | 12.22608 | | | | 61.1304 | |
| T-Value | 27.4216 | | | | | |
| Prob Level | 0.000011 | | | | | |
| Count | 5 | | 5 | 5 | | 1 |

**Summary Section of Temperature when Class=Influent**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 5 | 10.52 | 0.3982462 | 0.1781011 | 10.12 | 11.12 | 1 |

**Counts Section of Temperature when Class=Influent**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 10 | 5 | 0 | 5 | 52.6 | 553.9864 | 0.6344 |

**Means Section of Temperature when Class=Influent**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 10.52 | 10.4 | 10.51405 | 10.50818 | 52.6 | 10.12 |
| Std Error | 0.1781011 | | | | 0.8905055 | |
| 95% LCL | 10.02551 | | | | 50.12756 | |
| 95% UCL | 11.01449 | | | | 55.07244 | |
| T-Value | 59.0676 | | | | | |
| Prob Level | 0.000000 | | | | | |
| Count | 5 | | 5 | 5 | | 1 |

**Summary Section of Spec_Cond when Class=Effluent**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 5 | 85.4 | 16.18023 | 7.236021 | 76 | 114 | 38 |

**Counts Section of Spec_Cond when Class=Effluent**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 10 | 5 | 0 | 4 | 427 | 37513 | 1047.2 |

## Descriptive Statistics Report



**Means Section of Spec_Cond when Class=Effluent**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 85.4 | 79 | 84.33243 | 83.41526 | 427 | 76 |
| Std Error | 7.236021 | | | | 36.1801 | |
| 95% LCL | 65.30959 | | | | 326.5479 | |
| 95% UCL | 105.4904 | | | | 527.4521 | |
| T-Value | 11.8021 | | | | | |
| Prob Level | 0.000295 | | | | | |
| Count | 5 | | 5 | 5 | | 2 |

**Summary Section of Spec_Cond when Class=Influent**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 5 | 76.6 | 16.25731 | 7.270488 | 66 | 105 | 39 |

**Counts Section of Spec_Cond when Class=Influent**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 10 | 5 | 0 | 5 | 383 | 30395 | 1057.2 |

**Means Section of Spec_Cond when Class=Influent**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 76.6 | 70 | 75.40384 | 74.3829 | 383 | 66 |
| Std Error | 7.270488 | | | | 36.35244 | |
| 95% LCL | 56.41389 | | | | 282.0694 | |
| 95% UCL | 96.78611 | | | | 483.9306 | |
| T-Value | 10.5357 | | | | | |
| Prob Level | 0.000459 | | | | | |
| Count | 5 | | 5 | 5 | | 1 |

**Summary Section of DO when Class=Effluent**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 5 | 9.806 | 0.5941633 | 0.2657179 | 9.01 | 10.46 | 1.45 |

**Counts Section of DO when Class=Effluent**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 10 | 5 | 0 | 5 | 49.03 | 482.2003 | 1.41212 |

## Descriptive Statistics Report



**Means Section of DO when Class=Effluent**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 9.806 | 9.75 | 9.791488 | 9.77688 | 49.03 | 9.01 |
| Std Error | 0.2657179 | | | | 1.328589 | |
| 95% LCL | 9.068249 | | | | 45.34124 | |
| 95% UCL | 10.54375 | | | | 52.71876 | |
| T-Value | 36.9038 | | | | | |
| Prob Level | 0.000003 | | | | | |
| Count | 5 | | 5 | 5 | | 1 |

**Summary Section of DO when Class=Influent**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 5 | 9.75 | 0.8849011 | 0.3957398 | 9.05 | 11.28 | 2.23 |

**Counts Section of DO when Class=Influent**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 10 | 5 | 0 | 5 | 48.75 | 478.4447 | 3.1322 |

**Means Section of DO when Class=Influent**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 9.75 | 9.39 | 9.719832 | 9.691584 | 48.75 | 9.05 |
| Std Error | 0.3957398 | | | | 1.978699 | |
| 95% LCL | 8.65125 | | | | 43.25625 | |
| 95% UCL | 10.84875 | | | | 54.24375 | |
| T-Value | 24.6374 | | | | | |
| Prob Level | 0.000016 | | | | | |
| Count | 5 | | 5 | 5 | | 1 |

**Summary Section of pH when Class=Effluent**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 5 | 6.484 | 0.4403181 | 0.1969162 | 5.95 | 7.13 | 1.18 |

**Counts Section of pH when Class=Effluent**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 10 | 5 | 0 | 5 | 32.42 | 210.9868 | 0.77552 |

## Descriptive Statistics Report

Page/Date/Time 9 04-03-2001 14:22:40
Database I:\35Z01503\FS-12 SPEIM\Asse ... \Direct Impact Monitoring.S0

**Means Section of pH when Class=Effluent**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 6.484 | 6.43 | 6.47218 | 6.46051 | 32.42 | 5.95 |
| Std Error | 0.1969162 | | | | 0.9845811 | |
| 95% LCL | 5.937273 | | | | 29.68637 | |
| 95% UCL | 7.030727 | | | | 35.15364 | |
| T-Value | 32.9277 | | | | | |
| Prob Level | 0.000005 | | | | | |
| Count | 5 | | 5 | 5 | | 1 |

**Summary Section of pH when Class=Influent**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 5 | 6.538 | 0.4420068 | 0.1976714 | 5.94 | 7.15 | 1.21 |

**Counts Section of pH when Class=Influent**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 10 | 5 | 0 | 5 | 32.69 | 214.5087 | 0.78148 |

**Means Section of pH when Class=Influent**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 6.538 | 6.48 | 6.526038 | 6.514074 | 32.69 | 5.94 |
| Std Error | 0.1976714 | | | | 0.9883572 | |
| 95% LCL | 5.989176 | | | | 29.94588 | |
| 95% UCL | 7.086824 | | | | 35.43412 | |
| T-Value | 33.0751 | | | | | |
| Prob Level | 0.000005 | | | | | |
| Count | 5 | | 5 | 5 | | 1 |

**Summary Section of ORP when Class=Effluent**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 5 | 339.1 | 92.51724 | 41.37497 | 225.2 | 446.4 | 221.2 |

**Counts Section of ORP when Class=Effluent**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 10 | 5 | 0 | 5 | 1695.5 | 609181.8 | 34237.76 |

## Descriptive Statistics Report

Page/Date/Time 10 04-03-2001 14:22:40
Database I:\35Z01503\FS-12 SPEIM\Asse ... \Direct Impact Monitoring.S0

**Means Section of ORP when Class=Effluent**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 339.1 | 359.6 | 328.4299 | 317.5431 | 1695.5 | 225.2 |
| Std Error | 41.37497 | | | | 206.8748 | |
| 95% LCL | 224.2247 | | | | 1121.123 | |
| 95% UCL | 453.9753 | | | | 2269.877 | |
| T-Value | 8.1958 | | | | | |
| Prob Level | 0.001207 | | | | | |
| Count | 5 | | 5 | 5 | | 1 |

**Summary Section of ORP when Class=Influent**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 5 | 333.28 | 93.82831 | 41.9613 | 198.5 | 425 | 226.5 |

**Counts Section of ORP when Class=Influent**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 10 | 5 | 0 | 5 | 1666.4 | 590592.8 | 35215.01 |

**Means Section of ORP when Class=Influent**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 333.28 | 370.3 | 321.22 | 307.9731 | 1666.4 | 198.5 |
| Std Error | 41.9613 | | | | 209.8065 | |
| 95% LCL | 216.7768 | | | | 1083.884 | |
| 95% UCL | 449.7832 | | | | 2248.916 | |
| T-Value | 7.9426 | | | | | |
| Prob Level | 0.001361 | | | | | |
| Count | 5 | | 5 | 5 | | 1 |

**Summary Section of Turbidity when Class=Effluent**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 5 | 0.64 | 0.7635444 | 0.3414674 | 0 | 1.7 | 1.7 |

**Counts Section of Turbidity when Class=Effluent**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 10 | 5 | 0 | 5 | 3.2 | 4.38 | 2.332 |

## Descriptive Statistics Report

Page/Date/Time 11 04-03-2001 14:22:40
Database I:\35Z01503\FS-12 SPEIM\Asse ... \Direct Impact Monitoring.S0

**Means Section of Turbidity when Class=Effluent**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 0.64 | 0.2 | 0.4494331 | 0.2435821 | 3.2 | 0 |
| Std Error | 0.3414674 | | | | 1.707337 | |
| 95% LCL | -0.3080656 | | | | -1.540328 | |
| 95% UCL | 1.588066 | | | | 7.940328 | |
| T-Value | 1.8743 | | | | | |
| Prob Level | 0.134168 | | | | | |
| Count | 5 | | 4 | 4 | | 1 |

**Summary Section of Turbidity when Class=Influent**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 5 | 0.32 | 0.2588436 | 0.1157584 | 0 | 0.6 | 0.6 |

**Counts Section of Turbidity when Class=Influent**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 10 | 5 | 0 | 5 | 1.6 | 0.78 | 0.268 |

**Means Section of Turbidity when Class=Influent**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 0.32 | 0.4 | 0.3309751 | 0.2474227 | 1.6 | 0 |
| Std Error | 0.1157584 | | | | 0.5787919 | |
| 95% LCL | -1.396757E-03 | | | | -6.983785E-03 | |
| 95% UCL | 0.6413968 | | | | 3.206984 | |
| T-Value | 2.7644 | | | | | |
| Prob Level | 0.050622 | | | | | |
| Count | 5 | | 4 | 4 | | 1 |

## MANOVA Report

| | |
|---|---|
| Page/Date/Time | 1 04-03-2001 14:19:06 |
| Database | I:\35Z01503\FS-12 SPEIM\Asse ... \Direct Impact Monitoring.S0 |
| Response | Alkalinity,Nitrogen,Nitrate,Phosphorus,Phosphate |

**Expected Mean Squares Section**

| Source Term | DF | Term Fixed? | Denominator Term | Expected Square |
|---|---|---|---|---|
| A: Class | 1 | Yes | S(A) | S+sA |
| S(A) | 8 | No | | S |

Note: Expected Mean Squares are for the balanced cell-frequency case.

**MANOVA Tests Section**

| Term(DF) Test Statistic | Test Value | DF1 | DF2 | F-Ratio | Prob Level | Decision (0.05) |
|---|---|---|---|---|---|---|
| **A(1):Class** | | | | | | |
| Wilks' Lambda | 0.159010 | 5 | 4 | 4.23 | 0.093565 | Accept |
| Hotelling-Lawley Trace | 5.288912 | 5 | 4 | 4.23 | 0.093565 | Accept |
| Pillai's Trace | 0.840990 | 5 | 4 | 4.23 | 0.093565 | Accept |
| Roy's Largest Root | 5.288912 | 5 | 4 | 4.23 | 0.093565 | Accept |
| Alkalinity | 150.932250 | 1 | 8 | 24.14 | 0.001175 | Reject |
| Nitrogen | 85.264000 | 1 | 8 | 0.12 | 0.739222 | Accept |
| Nitrate | 314.721000 | 1 | 8 | 1.03 | 0.340138 | Accept |
| Phosphorus | 45.369000 | 1 | 8 | 2.57 | 0.147337 | Accept |
| Phosphate | 24.336000 | 1 | 8 | 3.02 | 0.120191 | Accept |

**Within Correlations\Covariances**

| | Alkalinity | Nitrogen | Nitrate | Phosphorus | Phosphate |
|---|---|---|---|---|---|
| Alkalinity | 6.2535 | 18.08788 | -7.347 | -3.6265 | -4.062375 |
| Nitrogen | 0.2699966 | 717.6875 | 141.0788 | -23.31075 | 6.74975 |
| Nitrate | -0.1679749 | 0.3010856 | 305.92 | 47.57025 | 36.73175 |
| Phosphorus | -0.3453871 | -0.2072376 | 0.6477561 | 17.6295 | 9.2965 |
| Phosphate | -0.5727195 | 8.882669E-02 | 0.7403911 | 0.7805899 | 8.0455 |

**Within-Cell Correlations Analysis**

| Variable | R-Squared Other Y's | Canonical Variate | Eigenvalue | Percent of Total | Cumulative Total |
|---|---|---|---|---|---|
| Alkalinity | 0.576389 | 1 | 2.689480 | 53.79 | 53.79 |
| Nitrogen | 0.498467 | 2 | 1.337124 | 26.74 | 80.53 |
| Nitrate | 0.683482 | 3 | 0.680819 | 13.62 | 94.15 |
| Phosphorus | 0.767250 | 4 | 0.203141 | 4.06 | 98.21 |
| Phosphate | 0.854694 | 5 | 0.089436 | 1.79 | 100.00 |

**Analysis of Variance Table for Alkalinity**

| Source Term | DF | Sum of Squares | Mean Square | F-Ratio | Prob Level | Power (Alpha=0.05) |
|---|---|---|---|---|---|---|
| A: Class | 1 | 150.9323 | 150.9323 | 24.14 | 0.001175* | 0.989452 |
| S | 8 | 50.028 | 6.2535 | | | |
| Total (Adjusted) | 9 | 200.9603 | | | | |
| Total | 10 | | | | | |

* Term significant at alpha = 0.05

**MANOVA Report**

Page/Date/Time 2 04-03-2001 14:19:06
Database I:\35Z01503\FS-12 SPEIM\Asse ... \Direct Impact Monitoring.S0
Response Alkalinity,Nitrogen,Nitrate,Phosphorus,Phosphate

**Analysis of Variance Table for Nitrogen**

| Source Term | DF | Sum of Squares | Mean Square | F-Ratio | Prob Level | Power (Alpha=0.05) |
|---|---|---|---|---|---|---|
| A: Class | 1 | 85.264 | 85.264 | 0.12 | 0.739222 | 0.060752 |
| S | 8 | 5741.5 | 717.6875 | | | |
| Total (Adjusted) | 9 | 5826.764 | | | | |
| Total | 10 | | | | | |

* Term significant at alpha = 0.05

**Analysis of Variance Table for Nitrate**

| Source Term | DF | Sum of Squares | Mean Square | F-Ratio | Prob Level | Power (Alpha=0.05) |
|---|---|---|---|---|---|---|
| A: Class | 1 | 314.721 | 314.721 | 1.03 | 0.340138 | 0.146002 |
| S | 8 | 2447.36 | 305.92 | | | |
| Total (Adjusted) | 9 | 2762.081 | | | | |
| Total | 10 | | | | | |

* Term significant at alpha = 0.05

**Analysis of Variance Table for Phosphorus**

| Source Term | DF | Sum of Squares | Mean Square | F-Ratio | Prob Level | Power (Alpha=0.05) |
|---|---|---|---|---|---|---|
| A: Class | 1 | 45.369 | 45.369 | 2.57 | 0.147337 | 0.293172 |
| S | 8 | 141.036 | 17.6295 | | | |
| Total (Adjusted) | 9 | 186.405 | | | | |
| Total | 10 | | | | | |

* Term significant at alpha = 0.05

**Analysis of Variance Table for Phosphate**

| Source Term | DF | Sum of Squares | Mean Square | F-Ratio | Prob Level | Power (Alpha=0.05) |
|---|---|---|---|---|---|---|
| A: Class | 1 | 24.336 | 24.336 | 3.02 | 0.120191 | 0.334878 |
| S | 8 | 64.364 | 8.0455 | | | |
| Total (Adjusted) | 9 | 88.7 | | | | |
| Total | 10 | | | | | |

* Term significant at alpha = 0.05

**Means and Standard Errors of Alkalinity**

| Term | Count | Mean | Standard Error |
|---|---|---|---|
| All | 10 | 12.635 | |
| A: Class | | | |
| Effluent | 5 | 16.52 | 1.268503 |
| Influent | 5 | 8.75 | 1.268503 |

**MANOVA Report**

| | |
|---|---|
| Page/Date/Time | 3 04-03-2001 14:19:06 |
| Database | I:\35Z01503\FS-12 SPEIM\Asse ... \Direct Impact Monitoring.S0 |
| Response | Alkalinity,Nitrogen,Nitrate,Phosphorus,Phosphate |

**Means and Standard Errors of Nitrogen**

| Term | Count | Mean | Standard Error |
|---|---|---|---|
| All | 10 | 67.44 | |
| A: Class | | | |
| Effluent | 5 | 64.52 | 1.268503 |
| Influent | 5 | 70.36 | 1.268503 |

**Means and Standard Errors of Nitrate**

| Term | Count | Mean | Standard Error |
|---|---|---|---|
| All | 10 | 50.77 | |
| A: Class | | | |
| Effluent | 5 | 45.16 | 1.268503 |
| Influent | 5 | 56.38 | 1.268503 |

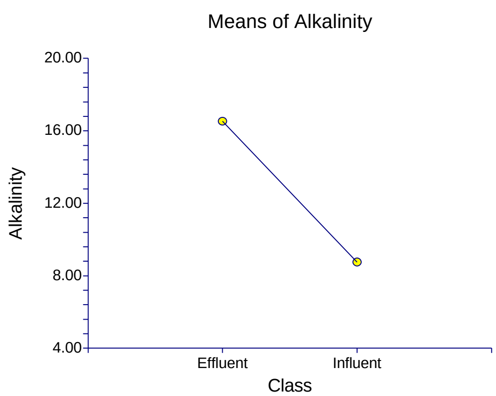
**Means and Standard Errors of Phosphorus**

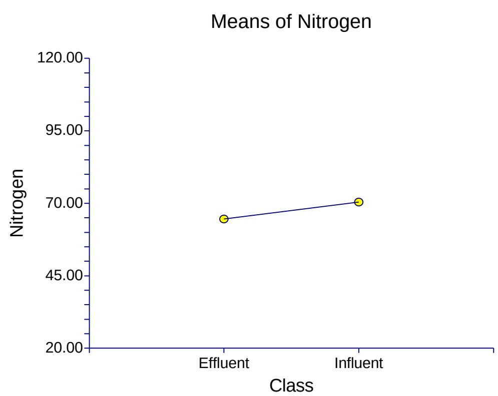
| Term | Count | Mean | Standard Error |
|---|---|---|---|
| All | 10 | 28.05 | |
| A: Class | | | |
| Effluent | 5 | 25.92 | 1.268503 |
| Influent | 5 | 30.18 | 1.268503 |

**Means and Standard Errors of Phosphate**

| Term | Count | Mean | Standard Error |
|---|---|---|---|
| All | 10 | 25.1 | |
| A: Class | | | |
| Effluent | 5 | 23.54 | 1.268503 |
| Influent | 5 | 26.66 | 1.268503 |

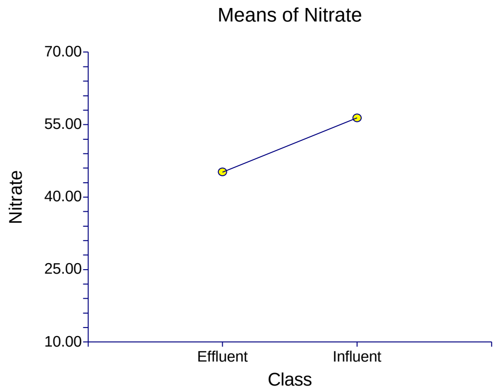
**Plots Section**

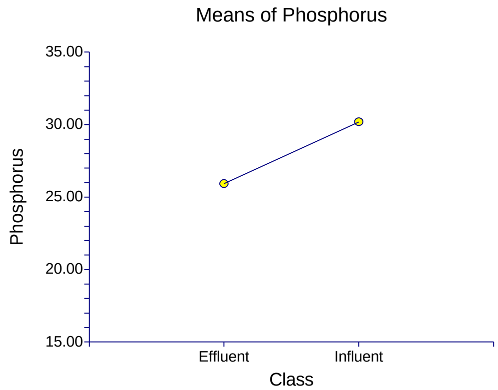


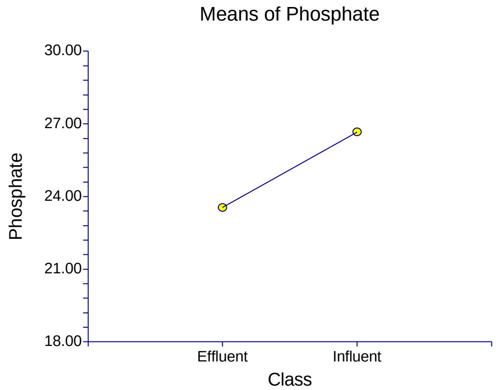



**MANOVA Report**

Page/Date/Time 4 04-03-2001 14:19:07
Database I:\35Z01503\FS-12 SPEIM\Asse ... \Direct Impact Monitoring.S0
Response Alkalinity,Nitrogen,Nitrate,Phosphorus,Phosphate



## MANOVA Report

| | |
|---|---|
| Page/Date/Time | 1 04-03-2001 14:21:24 |
| Database | I:\35Z01503\FS-12 SPEIM\Asse ... \Direct Impact Monitoring.S0 |
| Response | Temperature,Spec_Cond,DO,pH,ORP,Turbidity |

**Expected Mean Squares Section**

| Source Term | DF | Term Fixed? | Denominator Term | Expected Square |
|---|---|---|---|---|
| A: Class | 1 | Yes | S(A) | S+sA |
| S(A) | 8 | No | | S |

Note: Expected Mean Squares are for the balanced cell-frequency case.

**MANOVA Tests Section**

| Term(DF) Test Statistic | Test Value | DF1 | DF2 | F-Ratio | Prob Level | Decision (0.05) |
|---|---|---|---|---|---|---|
| **A(1):Class** | | | | | | |
| Wilks' Lambda | 0.264497 | 6 | 3 | 1.39 | 0.424078 | Accept |
| Hotelling-Lawley Trace | 2.780766 | 6 | 3 | 1.39 | 0.424078 | Accept |
| Pillai's Trace | 0.735503 | 6 | 3 | 1.39 | 0.424078 | Accept |
| Roy's Largest Root | 2.780766 | 6 | 3 | 1.39 | 0.424078 | Accept |
| Temperature | 0.846810 | 1 | 8 | 1.73 | 0.224684 | Accept |
| Spec_Cond | 193.600000 | 1 | 8 | 0.74 | 0.415912 | Accept |
| DO | 0.007840 | 1 | 8 | 0.01 | 0.909375 | Accept |
| pH | 0.007290 | 1 | 8 | 0.04 | 0.851362 | Accept |
| ORP | 84.681000 | 1 | 8 | 0.01 | 0.923756 | Accept |
| Turbidity | 0.256000 | 1 | 8 | 0.79 | 0.400694 | Accept |

**Within Correlations\Covariances**

| | Temperature | Spec_Cond | DO | pH | ORP | Turbidity |
|---|---|---|---|---|---|---|
| Temperature | 0.489085 | 1.33325 | 0.1480425 | 0.1854325 | -51.11237 | 0.141825 |
| Spec_Cond | 0.1175439 | 263.05 | -2.514 | 0.24725 | -730.105 | -1.305 |
| DO | 0.2808696 | -0.2056632 | 0.56804 | 0.10306 | 5.765375 | 0.097225 |
| pH | 0.6010275 | 3.455555E-02 | 0.3099569 | 0.194625 | -13.26377 | 0.16805 |
| ORP | -0.7843937 | -0.4831326 | 8.209909E-02 | -0.322677 | 8681.596 | -6.3335 |
| Turbidity | 0.3557287 | -0.1411399 | 0.2262803 | 0.6681862 | -0.1192346 | 0.325 |

**Within-Cell Correlations Analysis**

| Variable | R-Squared Other Y's | Canonical Variate | Eigenvalue | Percent of Total | Cumulative Total |
|---|---|---|---|---|---|
| Temperature | 0.850146 | 1 | 2.573735 | 42.90 | 42.90 |
| Spec_Cond | 0.457123 | 2 | 1.631849 | 27.20 | 70.09 |
| DO | 0.324837 | 3 | 0.811150 | 13.52 | 83.61 |
| pH | 0.636446 | 4 | 0.626617 | 10.44 | 94.06 |
| ORP | 0.837354 | 5 | 0.282172 | 4.70 | 98.76 |
| Turbidity | 0.475187 | 6 | 0.074478 | 1.24 | 100.00 |

## MANOVA Report

Page/Date/Time 2 04-03-2001 14:21:25
Database I:\35Z01503\FS-12 SPEIM\Asse ... \Direct Impact Monitoring.S0
Response Temperature,Spec_Cond,DO,pH,ORP,Turbidity

**Analysis of Variance Table for Temperature**

| Source Term | DF | Sum of Squares | Mean Square | F-Ratio | Prob Level | Power (Alpha=0.05) |
|---|---|---|---|---|---|---|
| A: Class | 1 | 0.84681 | 0.84681 | 1.73 | 0.224684 | 0.213334 |
| S | 8 | 3.91268 | 0.489085 | | | |
| Total (Adjusted) | 9 | 4.75949 | | | | |
| Total | 10 | | | | | |

* Term significant at alpha = 0.05

**Analysis of Variance Table for Spec_Cond**

| Source Term | DF | Sum of Squares | Mean Square | F-Ratio | Prob Level | Power (Alpha=0.05) |
|---|---|---|---|---|---|---|
| A: Class | 1 | 193.6 | 193.6 | 0.74 | 0.415912 | 0.118161 |
| S | 8 | 2104.4 | 263.05 | | | |
| Total (Adjusted) | 9 | 2298 | | | | |
| Total | 10 | | | | | |

* Term significant at alpha = 0.05

**Analysis of Variance Table for DO**

| Source Term | DF | Sum of Squares | Mean Square | F-Ratio | Prob Level | Power (Alpha=0.05) |
|---|---|---|---|---|---|---|
| A: Class | 1 | 0.00784 | 0.00784 | 0.01 | 0.909375 | 0.051243 |
| S | 8 | 4.54432 | 0.56804 | | | |
| Total (Adjusted) | 9 | 4.55216 | | | | |
| Total | 10 | | | | | |

* Term significant at alpha = 0.05

**Analysis of Variance Table for pH**

| Source Term | DF | Sum of Squares | Mean Square | F-Ratio | Prob Level | Power (Alpha=0.05) |
|---|---|---|---|---|---|---|
| A: Class | 1 | 0.00729 | 0.00729 | 0.04 | 0.851362 | 0.053377 |
| S | 8 | 1.557 | 0.194625 | | | |
| Total (Adjusted) | 9 | 1.56429 | | | | |
| Total | 10 | | | | | |

* Term significant at alpha = 0.05

**Analysis of Variance Table for ORP**

| Source Term | DF | Sum of Squares | Mean Square | F-Ratio | Prob Level | Power (Alpha=0.05) |
|---|---|---|---|---|---|---|
| A: Class | 1 | 84.681 | 84.681 | 0.01 | 0.923756 | 0.050878 |
| S | 8 | 69452.77 | 8681.596 | | | |
| Total (Adjusted) | 9 | 69537.45 | | | | |
| Total | 10 | | | | | |

* Term significant at alpha = 0.05

**MANOVA Report**

| | |
|---|---|
| Page/Date/Time | 3 04-03-2001 14:21:25 |
| Database | I:\35Z01503\FS-12 SPEIM\Asse ... \Direct Impact Monitoring.S0 |
| Response | Temperature,Spec_Cond,DO,pH,ORP,Turbidity |

**Analysis of Variance Table for Turbidity**

| Source Term | DF | Sum of Squares | Mean Square | F-Ratio | Prob Level | Power (Alpha=0.05) |
|---|---|---|---|---|---|---|
| A: Class | 1 | 0.256 | 0.256 | 0.79 | 0.400694 | 0.123058 |
| S | 8 | 2.6 | 0.325 | | | |
| Total (Adjusted) | 9 | 2.856 | | | | |
| Total | 10 | | | | | |

* Term significant at alpha = 0.05

**Means and Standard Errors of Temperature**

| Term | Count | Mean | Standard Error |
|---|---|---|---|
| All | 10 | 10.811 | |
| A: Class | | | |
| Effluent | 5 | 11.102 | 0.254951 |
| Influent | 5 | 10.52 | 0.254951 |

**Means and Standard Errors of Spec_Cond**

| Term | Count | Mean | Standard Error |
|---|---|---|---|
| All | 10 | 81 | |
| A: Class | | | |
| Effluent | 5 | 85.4 | 0.254951 |
| Influent | 5 | 76.6 | 0.254951 |

**Means and Standard Errors of DO**

| Term | Count | Mean | Standard Error |
|---|---|---|---|
| All | 10 | 9.778 | |
| A: Class | | | |
| Effluent | 5 | 9.806 | 0.254951 |
| Influent | 5 | 9.75 | 0.254951 |

**Means and Standard Errors of pH**

| Term | Count | Mean | Standard Error |
|---|---|---|---|
| All | 10 | 6.511 | |
| A: Class | | | |
| Effluent | 5 | 6.484 | 0.254951 |
| Influent | 5 | 6.538 | 0.254951 |

**Means and Standard Errors of ORP**

| Term | Count | Mean | Standard Error |
|---|---|---|---|
| All | 10 | 336.19 | |
| A: Class | | | |
| Effluent | 5 | 339.1 | 0.254951 |
| Influent | 5 | 333.28 | 0.254951 |

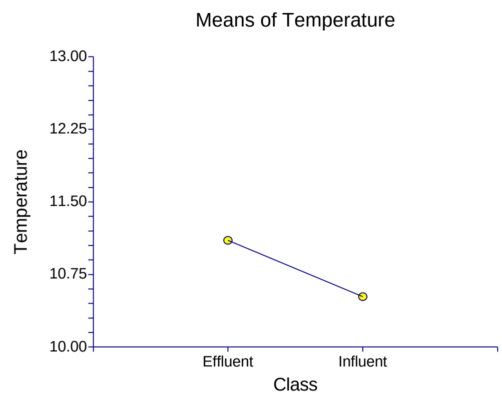
**MANOVA Report**

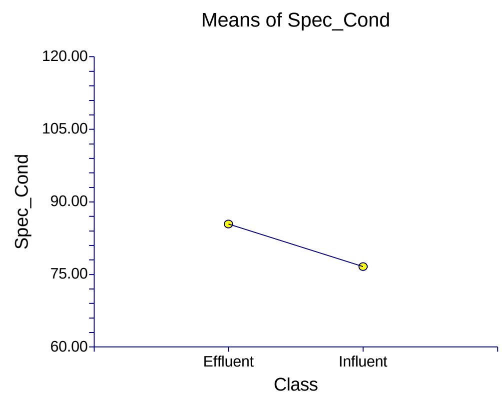
Page/Date/Time 4 04-03-2001 14:21:25
Database I:\35Z01503\FS-12 SPEIM\Asse ... \Direct Impact Monitoring.S0
Response Temperature,Spec_Cond,DO,pH,ORP,Turbidity

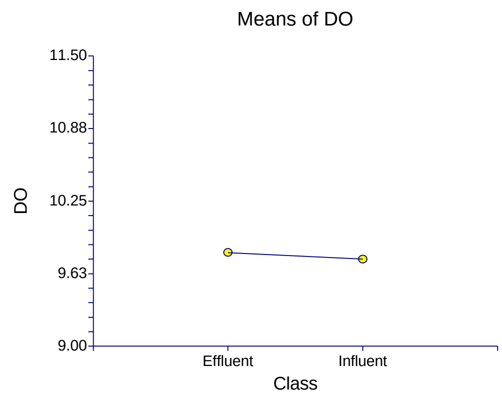
## Means and Standard Errors of Turbidity

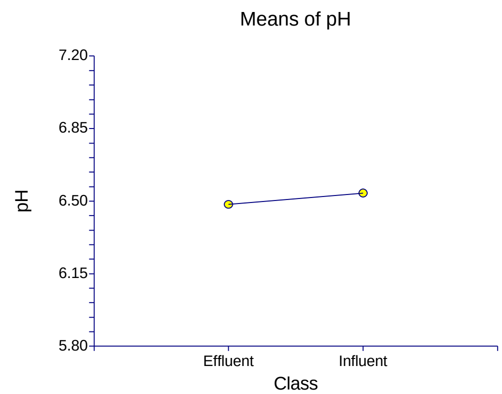
| Term | Count | Mean | Standard Error |
|---|---|---|---|
| All | 10 | 0.48 | |
| A: Class | | | |
| Effluent | 5 | 0.64 | 0.254951 |
| Influent | 5 | 0.32 | 0.254951 |

## Plots Section



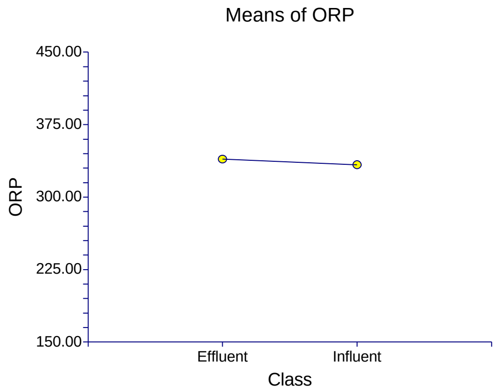



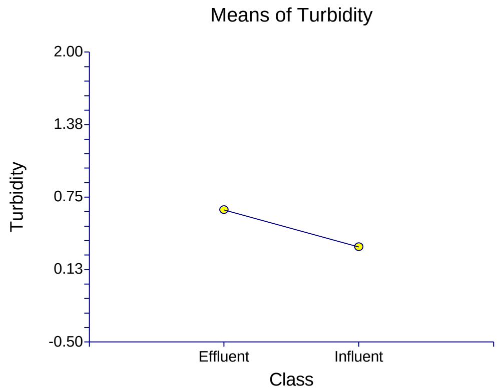



**MANOVA Report**

Page/Date/Time 5 04-03-2001 14:21:25
Database I:\35Z01503\FS-12 SPEIM\Asse ... \Direct Impact Monitoring.S0
Response Temperature,Spec_Cond,DO,pH,ORP,Turbidity



## Descriptive Statistics Report

Page/Date/Time 1 03-15-2001 11:05:35
Database D:\Euan\FS12 Annual working\ ... hem for descriptive stats.S0

**Summary Section of TOC when gradient=down**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 13 | 0.4107692 | 0.7081721 | 0.1964116 | 0 | 1.8 | 1.8 |

**Means Section of TOC when gradient=down**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 0.4107692 | 0 | 1.203732 | 1.053658 | 5.34 | 0 |
| Std Error | 0.1964116 | | | | 2.553351 | |
| 95% LCL | -1.717487E-02 | | | | -0.2232734 | |
| 95% UCL | 0.8387133 | | | | 10.90327 | |
| T-Value | 2.0914 | | | | | |
| Prob Level | 0.058433 | | | | | |
| Count | 13 | | 4 | 4 | | 9 |

**Summary Section of TOC when gradient=ref**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 10 | 0.605 | 0.6443817 | 0.2037714 | 0 | 1.8 | 1.8 |

**Means Section of TOC when gradient=ref**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 0.605 | 0.56 | 0.9056951 | 0.8179775 | 6.05 | 0 |
| Std Error | 0.2037714 | | | | 2.037714 | |
| 95% LCL | 0.1440371 | | | | 1.440371 | |
| 95% UCL | 1.065963 | | | | 10.65963 | |
| T-Value | 2.9690 | | | | | |
| Prob Level | 0.015728 | | | | | |
| Count | 10 | | 6 | 6 | | 4 |

**Summary Section of TOC when gradient=up**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 36 | 0.5275 | 0.3587707 | 5.979512E-02 | 0 | 1.5 | 1.5 |

**Means Section of TOC when gradient=up**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 0.5275 | 0.535 | 0.6440492 | 0.6172315 | 18.99 | 0 |
| Std Error | 5.979512E-02 | | | | 2.152624 | |
| 95% LCL | 0.4061095 | | | | 14.61994 | |
| 95% UCL | 0.6488906 | | | | 23.36006 | |
| T-Value | 8.8218 | | | | | |
| Prob Level | 0.000000 | | | | | |
| Count | 36 | | 28 | 28 | | 8 |

## Descriptive Statistics Report

| | |
|---|---|
| Page/Date/Time | 2 03-15-2001 11:05:35 |
| Database | D:\Euan\FS12 Annual working\ ... hem for descriptive stats.S0 |

**Summary Section of SuspSol when gradient=down**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 27 | 2 | 4.463527 | 0.8590062 | 0 | 16 | 16 |

**Means Section of SuspSol when gradient=down**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 2 | 0 | 7.645204 | 6.502258 | 54 | 0 |
| Std Error | 0.8590062 | | | | 23.19317 | |
| 95% LCL | 0.2342874 | | | | 6.325759 | |
| 95% UCL | 3.765713 | | | | 101.6742 | |
| T-Value | 2.3283 | | | | | |
| Prob Level | 0.027945 | | | | | |
| Count | 27 | | 6 | 6 | | 21 |

**Summary Section of SuspSol when gradient=ref**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|

**Means Section of SuspSol when gradient=ref**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | | | | | | |
| Std Error | | | | | | |
| 95% LCL | | | | | 0 | |
| 95% UCL | | | | | 0 | |
| T-Value | | | | | | |
| Prob Level | | | | | | |
| Count | | | | | | |

**Summary Section of SuspSol when gradient=up**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 26 | 0.4615385 | 2.353394 | 0.4615385 | 0 | 12 | 12 |

**Means Section of SuspSol when gradient=up**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 0.4615385 | 0 | 12 | 12 | 12 | 0 |
| Std Error | 0.4615385 | | | | 12 | |
| 95% LCL | -0.4890178 | | | | -12.71446 | |
| 95% UCL | 1.412095 | | | | 36.71446 | |
| T-Value | 1.0000 | | | | | |
| Prob Level | 0.326892 | | | | | |
| Count | 26 | | 1 | 1 | | 25 |

**Descriptive Statistics Report**

Page/Date/Time 3 03-15-2001 11:05:35
Database D:\Euan\FS12 Annual working\ ... hem for descriptive stats.S0

**Summary Section of Nitrate when gradient=down**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 13 | 52.99231 | 45.7557 | 12.69035 | 0 | 154 | 154 |

**Means Section of Nitrate when gradient=down**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 52.99231 | 39.7 | 47.40668 | 28.19003 | 688.9 | 0 |
| Std Error | 12.69035 | | | | 164.9745 | |
| 95% LCL | 25.34241 | | | | 329.4514 | |
| 95% UCL | 80.6422 | | | | 1048.349 | |
| T-Value | 4.1758 | | | | | |
| Prob Level | 0.001286 | | | | | |
| Count | 13 | | 11 | 11 | | 2 |

**Summary Section of Nitrate when gradient=ref**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 10 | 324.86 | 401.7527 | 127.0454 | 0 | 1040 | 1040 |

**Means Section of Nitrate when gradient=ref**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 324.86 | 69.15 | 121.9153 | 18.70375 | 3248.6 | 0 |
| Std Error | 127.0454 | | | | 1270.454 | |
| 95% LCL | 37.46341 | | | | 374.6341 | |
| 95% UCL | 612.2566 | | | | 6122.566 | |
| T-Value | 2.5570 | | | | | |
| Prob Level | 0.030837 | | | | | |
| Count | 10 | | 8 | 8 | | 2 |

**Summary Section of Nitrate when gradient=up**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 11 | 185.0546 | 235.0458 | 70.86897 | 0 | 633 | 633 |

**Means Section of Nitrate when gradient=up**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 185.0546 | 43.4 | 72.81342 | 27.55044 | 2035.6 | 0 |
| Std Error | 70.86897 | | | | 779.5587 | |
| 95% LCL | 27.14863 | | | | 298.6349 | |
| 95% UCL | 342.9604 | | | | 3772.565 | |
| T-Value | 2.6112 | | | | | |
| Prob Level | 0.025986 | | | | | |
| Count | 11 | | 10 | 10 | | 1 |

## Descriptive Statistics Report

Page/Date/Time 4 03-15-2001 11:05:35
Database D:\Euan\FS12 Annual working\ ... hem for descriptive stats.S0

**Summary Section of Alk when gradient=down**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 13 | 8.961538 | 10.16223 | 2.818495 | 0 | 22.4 | 22.4 |

**Means Section of Alk when gradient=down**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 8.961538 | 0 | 19.32934 | 19.24614 | 116.5 | 0 |
| Std Error | 2.818495 | | | | 36.64044 | |
| 95% LCL | 2.820565 | | | | 36.66734 | |
| 95% UCL | 15.10251 | | | | 196.3327 | |
| T-Value | 3.1795 | | | | | |
| Prob Level | 0.007928 | | | | | |
| Count | 13 | | 6 | 6 | | 7 |

**Summary Section of Alk when gradient=ref**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 10 | 21.68 | 18.60751 | 5.884212 | 4.3 | 54.7 | 50.4 |

**Means Section of Alk when gradient=ref**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 21.68 | 12.95 | 15.40951 | 11.12074 | 216.8 | 4.3 |
| Std Error | 5.884212 | | | | 58.84212 | |
| 95% LCL | 8.368987 | | | | 83.68987 | |
| 95% UCL | 34.99101 | | | | 349.9101 | |
| T-Value | 3.6844 | | | | | |
| Prob Level | 0.005041 | | | | | |
| Count | 10 | | 10 | 10 | | 1 |

**Summary Section of Alk when gradient=up**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 11 | 12.56364 | 12.37079 | 3.729935 | 0 | 27 | 27 |

**Means Section of Alk when gradient=up**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 12.56364 | 6.6 | 16.70219 | 13.07573 | 138.2 | 0 |
| Std Error | 3.729935 | | | | 41.02928 | |
| 95% LCL | 4.252824 | | | | 46.78106 | |
| 95% UCL | 20.87445 | | | | 229.6189 | |
| T-Value | 3.3683 | | | | | |
| Prob Level | 0.007142 | | | | | |
| Count | 11 | | 7 | 7 | | 4 |

## Descriptive Statistics Report

Page/Date/Time 5 03-15-2001 11:05:35
Database D:\Euan\FS12 Annual working\ ... hem for descriptive stats.S0

**Summary Section of OrthoP when gradient=down**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 13 | 23.24615 | 17.82267 | 4.94312 | 1.7 | 53.1 | 51.4 |

**Means Section of OrthoP when gradient=down**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 23.24615 | 24.3 | 13.83646 | 6.469299 | 302.2 | 1.7 |
| Std Error | 4.94312 | | | | 64.26057 | |
| 95% LCL | 12.47602 | | | | 162.1883 | |
| 95% UCL | 34.01629 | | | | 442.2117 | |
| T-Value | 4.7027 | | | | | |
| Prob Level | 0.000512 | | | | | |
| Count | 13 | | 13 | 13 | | 1 |

**Summary Section of OrthoP when gradient=ref**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 6 | 9.4 | 10.56352 | 4.31254 | 0 | 23.1 | 23.1 |

**Means Section of OrthoP when gradient=ref**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 9.4 | 8.25 | 18.56956 | 18.35762 | 56.4 | 0 |
| Std Error | 4.31254 | | | | 25.87524 | |
| 95% LCL | -1.685737 | | | | -10.11442 | |
| 95% UCL | 20.48574 | | | | 122.9144 | |
| T-Value | 2.1797 | | | | | |
| Prob Level | 0.081145 | | | | | |
| Count | 6 | | 3 | 3 | | 3 |

**Summary Section of OrthoP when gradient=up**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 10 | 42.44 | 35.90284 | 11.35347 | 4.1 | 99.2 | 95.1 |

**Means Section of OrthoP when gradient=up**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 42.44 | 45.85 | 23.37795 | 11.04913 | 424.4 | 4.1 |
| Std Error | 11.35347 | | | | 113.5347 | |
| 95% LCL | 16.75666 | | | | 167.5666 | |
| 95% UCL | 68.12334 | | | | 681.2335 | |
| T-Value | 3.7381 | | | | | |
| Prob Level | 0.004639 | | | | | |
| Count | 10 | | 10 | 10 | | 1 |

## Descriptive Statistics Report

Page/Date/Time 6 03-15-2001 11:05:35
Database D:\Euan\FS12 Annual working\ ... hem for descriptive stats.S0

**Summary Section of Ammon when gradient=down**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 13 | 4.123077 | 8.281018 | 2.296741 | 0 | 28.6 | 28.6 |

**Means Section of Ammon when gradient=down**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 4.123077 | 0 | 10.9472 | 9.252719 | 53.6 | 0 |
| Std Error | 2.296741 | | | | 29.85763 | |
| 95% LCL | -0.8810921 | | | | -11.4542 | |
| 95% UCL | 9.127246 | | | | 118.6542 | |
| T-Value | 1.7952 | | | | | |
| Prob Level | 0.097831 | | | | | |
| Count | 13 | | 4 | 4 | | 9 |

**Summary Section of Ammon when gradient=ref**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 10 | 3.92 | 5.360721 | 1.695209 | 0 | 13.8 | 13.8 |

**Means Section of Ammon when gradient=ref**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 3.92 | 0 | 9.456966 | 9.140154 | 39.2 | 0 |
| Std Error | 1.695209 | | | | 16.95209 | |
| 95% LCL | 8.517096E-02 | | | | 0.8517097 | |
| 95% UCL | 7.754829 | | | | 77.54829 | |
| T-Value | 2.3124 | | | | | |
| Prob Level | 0.046055 | | | | | |
| Count | 10 | | 4 | 4 | | 6 |

**Summary Section of Ammon when gradient=up**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 11 | 76.55454 | 89.01949 | 26.84039 | 0 | 293 | 293 |

**Means Section of Ammon when gradient=up**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 76.55454 | 66.8 | 51.4816 | 23.45558 | 842.1 | 0 |
| Std Error | 26.84039 | | | | 295.2443 | |
| 95% LCL | 16.75043 | | | | 184.2548 | |
| 95% UCL | 136.3587 | | | | 1499.945 | |
| T-Value | 2.8522 | | | | | |
| Prob Level | 0.017185 | | | | | |
| Count | 11 | | 9 | 9 | | 2 |

## Descriptive Statistics Report

Page/Date/Time 7 03-15-2001 11:05:35
Database D:\Euan\FS12 Annual working\ ... hem for descriptive stats.S0

**Summary Section of DOC when gradient=down**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 13 | 0.7769231 | 0.5738958 | 0.1591701 | 0 | 1.7 | 1.7 |

**Means Section of DOC when gradient=down**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 0.7769231 | 0.75 | 0.9367545 | 0.872291 | 10.1 | 0 |
| Std Error | 0.1591701 | | | | 2.069211 | |
| 95% LCL | 0.4301213 | | | | 5.591577 | |
| 95% UCL | 1.123725 | | | | 14.60842 | |
| T-Value | 4.8811 | | | | | |
| Prob Level | 0.000378 | | | | | |
| Count | 13 | | 10 | 10 | | 3 |

**Summary Section of DOC when gradient=ref**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 10 | 1.037 | 0.6648483 | 0.2102435 | 0 | 2.1 | 2.1 |

**Means Section of DOC when gradient=ref**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 1.037 | 0.815 | 1.029261 | 0.9282438 | 10.37 | 0 |
| Std Error | 0.2102435 | | | | 2.102435 | |
| 95% LCL | 0.5613961 | | | | 5.613961 | |
| 95% UCL | 1.512604 | | | | 15.12604 | |
| T-Value | 4.9324 | | | | | |
| Prob Level | 0.000811 | | | | | |
| Count | 10 | | 9 | 9 | | 1 |

**Summary Section of DOC when gradient=up**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 11 | 0.6972727 | 0.6361146 | 0.1917958 | 0 | 1.6 | 1.6 |

**Means Section of DOC when gradient=up**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 0.6972727 | 0.79 | 1.023257 | 0.9437348 | 7.67 | 0 |
| Std Error | 0.1917958 | | | | 2.109754 | |
| 95% LCL | 0.2699251 | | | | 2.969176 | |
| 95% UCL | 1.12462 | | | | 12.37082 | |
| T-Value | 3.6355 | | | | | |
| Prob Level | 0.004571 | | | | | |
| Count | 11 | | 7 | 7 | | 4 |

## Descriptive Statistics Report

Page/Date/Time 8 03-15-2001 11:05:35
Database D:\Euan\FS12 Annual working\ ... hem for descriptive stats.S0

**Summary Section of TP when gradient=down**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 13 | 28.27692 | 17.49443 | 4.852083 | 5.8 | 57.8 | 52 |

**Means Section of TP when gradient=down**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 28.27692 | 28 | 22.30274 | 16.6512 | 367.6 | 5.8 |
| Std Error | 4.852083 | | | | 63.07708 | |
| 95% LCL | 17.70514 | | | | 230.1668 | |
| 95% UCL | 38.84871 | | | | 505.0331 | |
| T-Value | 5.8278 | | | | | |
| Prob Level | 0.000081 | | | | | |
| Count | 13 | | 13 | 13 | | 1 |

**Summary Section of TP when gradient=ref**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 10 | 20.36 | 12.49322 | 3.950702 | 4 | 39.5 | 35.5 |

**Means Section of TP when gradient=ref**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 20.36 | 20.2 | 15.91554 | 11.2421 | 203.6 | 4 |
| Std Error | 3.950702 | | | | 39.50702 | |
| 95% LCL | 11.42289 | | | | 114.2289 | |
| 95% UCL | 29.29711 | | | | 292.9711 | |
| T-Value | 5.1535 | | | | | |
| Prob Level | 0.000600 | | | | | |
| Count | 10 | | 10 | 10 | | 2 |

**Summary Section of TP when gradient=up**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 11 | 42.77273 | 39.70836 | 11.97252 | 0 | 109 | 109 |

**Means Section of TP when gradient=up**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 42.77273 | 30.7 | 27.47431 | 14.30355 | 470.5 | 0 |
| Std Error | 11.97252 | | | | 131.6977 | |
| 95% LCL | 16.09628 | | | | 177.0591 | |
| 95% UCL | 69.44917 | | | | 763.9409 | |
| T-Value | 3.5726 | | | | | |
| Prob Level | 0.005074 | | | | | |
| Count | 11 | | 10 | 10 | | 1 |

## Descriptive Statistics Report

| | |
|---|---|
| Page/Date/Time | 9 03-15-2001 11:05:35 |
| Database | D:\Euan\FS12 Annual working\ ... hem for descriptive stats.S0 |

**Summary Section of TDS when gradient=down**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|

**Means Section of TDS when gradient=down**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | | | | | | |
| Std Error | | | | | | |
| 95% LCL | | | | | 0 | |
| 95% UCL | | | | | 0 | |
| T-Value | | | | | | |
| Prob Level | | | | | | |
| Count | | | | | | |

**Summary Section of TDS when gradient=ref**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|

**Means Section of TDS when gradient=ref**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | | | | | | |
| Std Error | | | | | | |
| 95% LCL | | | | | 0 | |
| 95% UCL | | | | | 0 | |
| T-Value | | | | | | |
| Prob Level | | | | | | |
| Count | | | | | | |

**Summary Section of TDS when gradient=up**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 25 | 40.64 | 14.46513 | 2.893026 | 0 | 62 | 62 |

**Means Section of TDS when gradient=up**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 40.64 | 44 | 43.43768 | 42.66503 | 1016 | 48 |
| Std Error | 2.893026 | | | | 72.32565 | |
| 95% LCL | 34.66909 | | | | 866.7272 | |
| 95% UCL | 46.61091 | | | | 1165.273 | |
| T-Value | 14.0476 | | | | | |
| Prob Level | 0.000000 | | | | | |
| Count | 25 | | 23 | 23 | | 4 |

## Descriptive Statistics Report

Page/Date/Time 10 03-15-2001 11:05:35
Database D:\Euan\FS12 Annual working\ ... hem for descriptive stats.S0

**Summary Section of Nitrogen when gradient=down**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 13 | 82.13846 | 79.11761 | 21.94328 | 0 | 249 | 249 |

**Means Section of Nitrogen when gradient=down**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 82.13846 | 44.7 | 61.32605 | 43.37804 | 1067.8 | 0 |
| Std Error | 21.94328 | | | | 285.2626 | |
| 95% LCL | 34.32816 | | | | 446.2661 | |
| 95% UCL | 129.9488 | | | | 1689.334 | |
| T-Value | 3.7432 | | | | | |
| Prob Level | 0.002805 | | | | | |
| Count | 13 | | 12 | 12 | | 1 |

**Summary Section of Nitrogen when gradient=ref**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 10 | 410.31 | 417.8505 | 132.1359 | 32.9 | 1190 | 1157.1 |

**Means Section of Nitrogen when gradient=ref**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 410.31 | 225.5 | 204.491 | 100.9533 | 4103.1 | 32.9 |
| Std Error | 132.1359 | | | | 1321.359 | |
| 95% LCL | 111.3978 | | | | 1113.978 | |
| 95% UCL | 709.2222 | | | | 7092.222 | |
| T-Value | 3.1052 | | | | | |
| Prob Level | 0.012616 | | | | | |
| Count | 10 | | 10 | 10 | | 1 |

**Summary Section of Nitrogen when gradient=up**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 11 | 306.7727 | 216.9181 | 65.40327 | 53.5 | 725 | 671.5 |

**Means Section of Nitrogen when gradient=up**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 306.7727 | 182 | 237.0335 | 177.3914 | 3374.5 | 53.5 |
| Std Error | 65.40327 | | | | 719.436 | |
| 95% LCL | 161.0452 | | | | 1771.497 | |
| 95% UCL | 452.5003 | | | | 4977.503 | |
| T-Value | 4.6905 | | | | | |
| Prob Level | 0.000854 | | | | | |
| Count | 11 | | 11 | 11 | | 1 |

## Principal Components Report

| | |
|---|---|
| Page/Date/Time | 1 03-16-2001 08:55:02 |
| Database | D:\Euan\FS12 Annual working\ ... s\PCA ordination\PCA data.S0 |

### Descriptive Statistics Section

| Variables | Count | Mean | Standard Deviation | Communality |
|---|---|---|---|---|
| EDB | 57 | 2.032693 | 4.39705 | 1.000000 |
| EthylB | 57 | 6.166667E-02 | 0.413294 | 1.000000 |
| Chlorof | 57 | 0.551886 | 0.6242245 | 1.000000 |
| Iron | 57 | 160.4073 | 384.0944 | 1.000000 |
| Manga | 57 | 40.87193 | 76.35878 | 1.000000 |
| Nick | 57 | 2.383333 | 9.91369 | 1.000000 |

### Correlation Section

| | Variables | | | | |
|---|---|---|---|---|---|
| Variables | EDB | EthylB | Chlorof | Iron | Manga |
| EDB | 1.000000 | -0.070168 | 0.197569 | -0.162962 | 0.080153 |
| EthylB | -0.070168 | 1.000000 | -0.134272 | 0.083420 | 0.061954 |
| Chlorof | 0.197569 | -0.134272 | 1.000000 | -0.242555 | -0.267781 |
| Iron | -0.162962 | 0.083420 | -0.242555 | 1.000000 | 0.424960 |
| Manga | 0.080153 | 0.061954 | -0.267781 | 0.424960 | 1.000000 |
| Nick | -0.083087 | -0.030271 | -0.088104 | 0.191237 | -0.041413 |

Phi=0.177156 Log(Det|R|)=-0.480476 Bartlett Test=25.55 DF=15 Prob=0.043082

| | Variables |
|---|---|
| Variables | Nick |
| EDB | -0.083087 |
| EthylB | -0.030271 |
| Chlorof | -0.088104 |
| Iron | 0.191237 |
| Manga | -0.041413 |
| Nick | 1.000000 |

Phi=0.177156 Log(Det|R|)=-0.480476 Bartlett Test=25.55 DF=15 Prob=0.043082

### Bar Chart of Absolute Correlation Section

<table>
<tr><th></th><th>Variables</th><th></th><th></th><th></th><th></th></tr>
<tr><th>Variables</th><th>EDB</th><th>EthylB</th><th>Chlorof</th><th>Iron</th><th>Manga</th></tr>
<tr><td>EDB</td><td></td><td>||</td><td>||||</td><td>||||</td><td>||</td></tr>
<tr><td>EthylB</td><td>||</td><td></td><td>|||</td><td>||</td><td>||</td></tr>
<tr><td>Chlorof</td><td>||||</td><td>|||</td><td></td><td>|||||</td><td>||||||</td></tr>
<tr><td>Iron</td><td>||||</td><td>||</td><td>|||||</td><td></td><td>|||||||||</td></tr>
<tr><td>Manga</td><td>||</td><td>||</td><td>||||||</td><td>|||||||||</td><td></td></tr>
<tr><td>Nick</td><td>||</td><td>|</td><td>||</td><td>||||</td><td>|</td></tr>
</table>

Phi=0.177156 Log(Det|R|)=-0.480476 Bartlett Test=25.55 DF=15 Prob=0.043082

**Principal Components Report**

Page/Date/Time 2 03-16-2001 08:55:02
Database D:\Euan\FS12 Annual working\ ... s\PCA ordination\PCA data.S0

**Bar Chart of Absolute Correlation Section**

| **Variables** | **Variables Nick** |
|---|---|
| EDB | \|\| |
| EthylB | \| |
| Chlorof | \|\| |
| Iron | \|\|\|\| |
| Manga | \| |
| Nick | |

Phi=0.177156 Log(Det|R|)=-0.480476 Bartlett Test=25.55 DF=15 Prob=0.043082

**Eigenvalues after Varimax Rotation**

| **No.** | **Eigenvalue** | **Individual Percent** | **Cumulative Percent** | **Scree Plot** |
|---|---|---|---|---|
| 1 | 0.993852 | 16.56 | 16.56 | \|\|\|\| |
| 2 | 1.002502 | 16.71 | 33.27 | \|\|\|\| |
| 3 | 1.002628 | 16.71 | 49.98 | \|\|\|\| |
| 4 | 1.000984 | 16.68 | 66.67 | \|\|\|\| |
| 5 | 1.001007 | 16.68 | 83.35 | \|\|\|\| |
| 6 | 0.999027 | 16.65 | 100.00 | \|\|\|\| |

**Eigenvectors after Varimax Rotation**

| **Variables** | **Factors Factor1** | **Factor2** | **Factor3** | **Factor4** | **Factor5** |
|---|---|---|---|---|---|
| EDB | -0.253544 | 0.655580 | 0.258309 | -0.475817 | 0.337660 |
| EthylB | 0.215594 | -0.016307 | -0.720238 | -0.646062 | -0.122063 |
| Chlorof | -0.504824 | 0.084569 | 0.184674 | -0.212905 | -0.781722 |
| Iron | 0.586112 | 0.067165 | 0.239532 | -0.027334 | -0.476103 |
| Manga | 0.499386 | 0.551934 | 0.121182 | 0.079004 | -0.075159 |
| Nick | 0.203652 | -0.503642 | 0.555309 | -0.551258 | 0.166355 |

| **Variables** | **Factors Factor6** |
|---|---|
| EDB | 0.314312 |
| EthylB | -0.047069 |
| Chlorof | -0.217896 |
| Iron | 0.605941 |
| Manga | -0.647617 |
| Nick | -0.254837 |

## Principal Components Report

Page/Date/Time 3 03-16-2001 08:55:02
Database D:\Euan\FS12 Annual working\ ... s\PCA ordination\PCA data.S0

**Bar Chart of Absolute Eigenvectors after Varimax Rotation**

<table>
<tr><th></th><th>Factors</th><th></th><th></th><th></th><th></th></tr>
<tr><th>Variables</th><th>Factor1</th><th>Factor2</th><th>Factor3</th><th>Factor4</th><th>Factor5</th></tr>
<tr><td>EDB</td><td>||||||</td><td>||||||||||||||</td><td>||||||</td><td>||||||||||</td><td>|||||||</td></tr>
<tr><td>EthylB</td><td>|||||</td><td>|</td><td>|||||||||||||||</td><td>|||||||||||||</td><td>|||</td></tr>
<tr><td>Chlorof</td><td>|||||||||||</td><td>||</td><td>||||</td><td>|||||</td><td>||||||||||||||||</td></tr>
<tr><td>Iron</td><td>||||||||||||</td><td>||</td><td>|||||</td><td>|</td><td>||||||||||</td></tr>
<tr><td>Manga</td><td>||||||||||</td><td>||||||||||||</td><td>|||</td><td>||</td><td>||</td></tr>
<tr><td>Nick</td><td>|||||</td><td>|||||||||||</td><td>||||||||||||</td><td>||||||||||||</td><td>||||</td></tr>
</table>

**Bar Chart of Absolute Eigenvectors after Varimax Rotation**

<table>
<tr><th></th><th>Factors</th></tr>
<tr><th>Variables</th><th>Factor6</th></tr>
<tr><td>EDB</td><td>|||||||</td></tr>
<tr><td>EthylB</td><td>|</td></tr>
<tr><td>Chlorof</td><td>|||||</td></tr>
<tr><td>Iron</td><td>|||||||||||||</td></tr>
<tr><td>Manga</td><td>|||||||||||||</td></tr>
<tr><td>Nick</td><td>||||||</td></tr>
</table>

**Factor Loadings after Varimax Rotation**

| | Factors | | | | |
|---|---|---|---|---|---|
| **Variables** | **Factor1** | **Factor2** | **Factor3** | **Factor4** | **Factor5** |
| EDB | -0.078013 | 0.989702 | -0.035608 | 0.032305 | -0.096270 |
| EthylB | 0.033899 | -0.031615 | -0.018058 | -0.996589 | 0.061553 |
| Chlorof | -0.100167 | 0.099669 | -0.042616 | 0.065509 | -0.978691 |
| Iron | 0.959897 | -0.085530 | 0.103310 | -0.038558 | 0.105404 |
| Manga | 0.215910 | 0.058658 | -0.034572 | -0.025235 | 0.132278 |
| Nick | 0.092547 | -0.036082 | 0.993654 | 0.018339 | 0.038811 |

| | Factors |
|---|---|
| **Variables** | **Factor6** |
| EDB | -0.053138 |
| EthylB | -0.023400 |
| Chlorof | 0.126841 |
| Iron | -0.219120 |
| Manga | -0.964683 |
| Nick | 0.030681 |

## Principal Components Report

Page/Date/Time 4 03-16-2001 08:55:02
Database D:\Euan\FS12 Annual working\ ... s\PCA ordination\PCA data.S0

**Bar Chart of Absolute Factor Loadings after Varimax Rotation**

<table>
<tr><th></th><th>Factors</th><th></th><th></th><th></th><th></th></tr>
<tr><th>Variables</th><th>Factor1</th><th>Factor2</th><th>Factor3</th><th>Factor4</th><th>Factor5</th></tr>
<tr><td>EDB</td><td>||</td><td>||||||||||||||||||||</td><td>|</td><td>|</td><td>||</td></tr>
<tr><td>EthylB</td><td>|</td><td>|</td><td>|</td><td>||||||||||||||||||||</td><td>||</td></tr>
<tr><td>Chlorof</td><td>|||</td><td>||</td><td>|</td><td>||</td><td>||||||||||||||||||||</td></tr>
<tr><td>Iron</td><td>||||||||||||||||||||</td><td>||</td><td>|||</td><td>|</td><td>|||</td></tr>
<tr><td>Manga</td><td>|||||</td><td>||</td><td>|</td><td>|</td><td>|||</td></tr>
<tr><td>Nick</td><td>||</td><td>|</td><td>||||||||||||||||||||</td><td>|</td><td>|</td></tr>
</table>

**Bar Chart of Absolute Factor Loadings after Varimax Rotation**

<table>
<tr><th></th><th>Factors</th></tr>
<tr><th>Variables</th><th>Factor6</th></tr>
<tr><td>EDB</td><td>||</td></tr>
<tr><td>EthylB</td><td>|</td></tr>
<tr><td>Chlorof</td><td>|||</td></tr>
<tr><td>Iron</td><td>|||||</td></tr>
<tr><td>Manga</td><td>||||||||||||||||||||</td></tr>
<tr><td>Nick</td><td>|</td></tr>
</table>

**Communalities after Varimax Rotation**

| | Factors | | | | |
|---|---|---|---|---|---|
| **Variables** | **Factor1** | **Factor2** | **Factor3** | **Factor4** | **Factor5** |
| EDB | 0.006086 | 0.979511 | 0.001268 | 0.001044 | 0.009268 |
| EthylB | 0.001149 | 0.001000 | 0.000326 | 0.993189 | 0.003789 |
| Chlorof | 0.010033 | 0.009934 | 0.001816 | 0.004291 | 0.957837 |
| Iron | 0.921401 | 0.007315 | 0.010673 | 0.001487 | 0.011110 |
| Manga | 0.046617 | 0.003441 | 0.001195 | 0.000637 | 0.017497 |
| Nick | 0.008565 | 0.001302 | 0.987349 | 0.000336 | 0.001506 |

| | Factors | |
|---|---|---|
| **Variables** | **Factor6** | **Communality** |
| EDB | 0.002824 | 1.000000 |
| EthylB | 0.000548 | 1.000000 |
| Chlorof | 0.016089 | 1.000000 |
| Iron | 0.048013 | 1.000000 |
| Manga | 0.930613 | 1.000000 |
| Nick | 0.000941 | 1.000000 |

**Bar Chart of Communalities after Varimax Rotation**

<table>
<tr><th></th><th>Factors</th><th></th><th></th><th></th><th></th></tr>
<tr><th>Variables</th><th>Factor1</th><th>Factor2</th><th>Factor3</th><th>Factor4</th><th>Factor5</th></tr>
<tr><td>EDB</td><td>|</td><td>||||||||||||||||||||</td><td>|</td><td>|</td><td>|</td></tr>
<tr><td>EthylB</td><td>|</td><td>|</td><td>|</td><td>||||||||||||||||||||</td><td>|</td></tr>
<tr><td>Chlorof</td><td>|</td><td>|</td><td>|</td><td>|</td><td>||||||||||||||||||||</td></tr>
<tr><td>Iron</td><td>|||||||||||||||||||</td><td>|</td><td>|</td><td>|</td><td>|</td></tr>
<tr><td>Manga</td><td>|</td><td>|</td><td>|</td><td>|</td><td>|</td></tr>
<tr><td>Nick</td><td>|</td><td>|</td><td>||||||||||||||||||||</td><td>|</td><td>|</td></tr>
</table>

**Bar Chart of Communalities after Varimax Rotation**

<table>
<tr><th></th><th>Factors</th><th></th></tr>
<tr><th>Variables</th><th>Factor6</th><th>Communality</th></tr>
<tr><td>EDB</td><td>|</td><td>||||||||||||||||||||</td></tr>
<tr><td>EthylB</td><td>|</td><td>||||||||||||||||||||</td></tr>
<tr><td>Chlorof</td><td>|</td><td>||||||||||||||||||||</td></tr>
<tr><td>Iron</td><td>|</td><td>||||||||||||||||||||</td></tr>
<tr><td>Manga</td><td>|||||||||||||||||||</td><td>||||||||||||||||||||</td></tr>
<tr><td>Nick</td><td>|</td><td>||||||||||||||||||||</td></tr>
</table>

**Factor Structure Summary after Varimax Rotation**

| | Factors | | | | |
|---|---|---|---|---|---|
| **Factor1** | **Factor2** | **Factor3** | **Factor4** | **Factor5** | **Factor6** |
| Iron | EDB | Nick | EthylB | Chlorof | Manga |

**Score Coefficients after Varimax Rotation**

| | Factors | | | | |
|---|---|---|---|---|---|
| **Variables** | **Factor1** | **Factor2** | **Factor3** | **Factor4** | **Factor5** |
| EDB | 0.1001017 | 1.035523 | 2.155312E-02 | -2.566266E-02 | 0.1054806 |
| EthylB | -3.149462E-02 | 2.602887E-02 | 2.454907E-02 | -1.009823 | -6.127597E-02 |
| Chlorof | 7.031036E-02 | -0.1019088 | 3.650566E-02 | -5.746277E-02 | -1.062402 |
| Iron | 1.127388 | 9.111714E-02 | -0.1073584 | 2.735468E-02 | -6.696439E-02 |
| Manga | -0.2554007 | -9.111336E-02 | 5.992026E-02 | 1.137045E-02 | -0.1300898 |
| Nick | -0.1200699 | 2.056764E-02 | 1.022417 | -2.418493E-02 | -4.046223E-02 |

**Principal Components Report**

Page/Date/Time 6 03-16-2001 08:55:02
Database D:\Euan\FS12 Annual working\ ... s\PCA ordination\PCA data.S0

**Score Coefficients after Varimax Rotation**

| Variables | Factors<br>Factor6 |
|---|---|
| EDB | 9.973226E-02 |
| EthylB | 1.166802E-02 |
| Chlorof | -0.1359423 |
| Iron | 0.2518162 |
| Manga | -1.119596 |
| Nick | -0.0671789 |

**Factor Score after Varimax Rotation**

| Row | Factors<br>Factor1 | Factor2 | Factor3 | Factor4 | Factor5 | Factor6 |
|---|---|---|---|---|---|---|
| 1 | -0.2400 | -0.6316 | -0.1912 | 0.0636 | -1.5459 | 0.2559 |
| 2 | -0.2617 | -0.5901 | -0.2027 | 0.0818 | -1.2046 | 0.3003 |
| 3 | -0.2264 | -0.4903 | -0.1883 | 0.0601 | -1.5315 | 0.2695 |
| 4 | -0.5317 | 0.1571 | 0.1134 | 0.1407 | 0.1074 | -0.4042 |
| 5 | -1.1843 | -0.3222 | -0.0817 | 0.2289 | 0.6307 | -2.9317 |
| 6 | -0.7475 | 0.0220 | -0.0788 | 0.1114 | -0.9372 | -1.8846 |
| 7 | -0.3236 | 4.3051 | -0.0890 | 0.0990 | 1.3045 | -0.6239 |
| 8 | -0.3335 | 1.6543 | -0.1542 | 0.1053 | 0.1937 | -0.1990 |
| 9 | -0.3799 | -0.2656 | -0.1538 | 0.0747 | -1.3323 | -0.3811 |
| 10 | -0.4199 | 0.2042 | -0.1461 | 0.0890 | -0.8892 | -0.5254 |
| 11 | -0.1782 | 1.0437 | -0.1755 | 0.0687 | -0.6027 | 0.3333 |
| 12 | -0.1416 | 1.9215 | -0.1244 | 0.0286 | -0.9215 | 0.0286 |
| 13 | -0.3676 | -0.4437 | -0.2575 | 0.1680 | 0.3860 | 0.5034 |
| 14 | -0.3227 | -0.2044 | -0.2420 | 0.1457 | 0.1239 | 0.4921 |
| 15 | -0.2964 | -0.0128 | -0.2343 | 0.1352 | 0.0423 | 0.4984 |
| 16 | -0.2622 | 0.4209 | -0.2290 | 0.1302 | 0.1876 | 0.5523 |
| 17 | -0.2476 | -0.3118 | -0.2031 | 0.0845 | -1.0078 | 0.3474 |
| 18 | -0.2569 | -0.6071 | -0.2000 | 0.0774 | -1.2906 | 0.2886 |
| 19 | -0.4090 | -0.3867 | -0.2789 | 0.2016 | 1.0070 | 0.5826 |
| 20 | -0.4090 | -0.3867 | -0.2789 | 0.2016 | 1.0070 | 0.5826 |
| 21 | -0.4210 | -0.3910 | -0.2761 | 0.2022 | 1.0009 | 0.5298 |
| 22 | -0.3268 | -0.5059 | -0.2362 | 0.1344 | -0.2354 | 0.4236 |
| 23 | -0.1802 | -0.7102 | -0.1604 | 0.0151 | -2.4387 | 0.1423 |
| 24 | -0.2924 | -0.5557 | -0.2184 | 0.1064 | -0.7545 | 0.3572 |
| 25 | -0.2513 | -0.6153 | -0.1971 | 0.0728 | -1.3757 | 0.2777 |
| 26 | -0.3840 | -0.4209 | -0.2660 | 0.1813 | 0.6327 | 0.5349 |
| 27 | -0.8070 | -0.5287 | -0.1856 | 0.2194 | 0.8043 | -1.1622 |
| 28 | -0.4455 | -0.6642 | -0.1600 | 0.0901 | -1.2987 | -0.5025 |
| 29 | -0.2986 | -0.5467 | -0.2216 | 0.1114 | -0.6609 | 0.3692 |
| 30 | -0.4090 | -0.3867 | -0.2789 | 0.2016 | 1.0070 | 0.5826 |
| 31 | -0.1781 | -0.7214 | -0.1590 | 0.0129 | -2.4820 | 0.1362 |
| 32 | -0.4090 | -0.3867 | -0.2789 | 0.2016 | 1.0070 | 0.5826 |
| 33 | -1.1735 | -0.2482 | 6.4836 | 0.0423 | 0.7375 | 0.1448 |
| 34 | -0.3768 | -0.3841 | -0.2820 | 0.2024 | 1.0051 | 0.5898 |
| 35 | -0.3571 | -0.3809 | -0.2303 | 0.2018 | 1.0014 | 0.5921 |
| 36 | -0.3168 | -0.3793 | -0.2877 | 0.2039 | 1.0015 | 0.6032 |
| 37 | -0.2980 | -0.2083 | -0.2844 | 0.1997 | 1.0188 | 0.6202 |
| 38 | 0.2621 | 3.8917 | -0.1220 | -0.0219 | -0.6705 | 0.7632 |
| 39 | -0.3029 | -0.3349 | -0.2877 | 0.2030 | 1.0054 | 0.6096 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 40 | -0.3011 | -0.3743 | -0.1668 | 0.2017 | 0.9948 | 0.6018 |
| 41 | -0.3798 | 0.7385 | -0.1698 | 0.1388 | 0.1401 | -0.5836 |
| 42 | -0.2751 | -0.3747 | -0.2431 | 0.2039 | 0.9962 | 0.6064 |
| 43 | 0.1662 | 2.4666 | 0.0490 | -0.0044 | -1.0797 | 0.5923 |
| 44 | -0.1912 | -0.3691 | -0.2997 | 0.2069 | 0.9941 | 0.6313 |
| 45 | -1.3057 | -0.1228 | 0.5023 | 0.2290 | 0.4650 | -4.2664 |

**Principal Components Report**

Page/Date/Time 7 03-16-2001 08:55:03
Database D:\Euan\FS12 Annual working\ ... s\PCA ordination\PCA data.S0

**Factor Score after Varimax Rotation**

| | **Factors** | | | | | |
|---|---|---|---|---|---|---|
| **Row** | **Factor1** | **Factor2** | **Factor3** | **Factor4** | **Factor5** | **Factor6** |
| 46 | -0.1982 | -0.3647 | -0.1333 | 0.2033 | 0.9867 | 0.6231 |
| 47 | -0.0597 | -0.3585 | -0.3122 | 0.2101 | 0.9862 | 0.6606 |
| 48 | 0.2150 | 0.3966 | 0.3374 | 0.0504 | -1.3592 | 0.1694 |
| 49 | 0.3373 | -0.3133 | 0.0885 | 0.2105 | 0.9420 | 0.7318 |
| 50 | 0.0114 | -0.1840 | -0.1343 | -7.3455 | 0.4144 | 0.1294 |
| 51 | 1.0785 | -0.1334 | 0.0203 | 0.1598 | -0.2055 | 0.7550 |
| 52 | 1.7910 | -0.3114 | -0.4367 | 0.2806 | 0.6652 | -0.4706 |
| 53 | 1.7433 | -0.3934 | -0.2447 | 0.3082 | 0.3980 | -2.4548 |
| 54 | 1.8054 | -0.3887 | -0.0039 | -0.7099 | 0.3373 | -2.2714 |
| 55 | 2.6215 | -0.2127 | -0.5317 | 0.2928 | 0.6809 | 0.1908 |
| 56 | 3.1461 | -0.1368 | 3.2690 | 0.1337 | -0.7827 | 0.8422 |
| 57 | 4.3008 | -0.1620 | -0.5452 | 0.3534 | 0.3948 | -0.7664 |
| 58 | | | | | | |
| 59 | | | | | | |
| 60 | | | | | | |
| 61 | | | | | | |
| 62 | | | | | | |
| 63 | | | | | | |
| 64 | | | | | | |
| 65 | | | | | | |
| 66 | | | | | | |
| 67 | | | | | | |
| 68 | | | | | | |
| 69 | | | | | | |
| 70 | | | | | | |
| 71 | | | | | | |
| 72 | | | | | | |
| 73 | | | | | | |
| 74 | | | | | | |
| 75 | | | | | | |
| 76 | | | | | | |
| 77 | | | | | | |
| 78 | | | | | | |
| 79 | | | | | | |
| 80 | | | | | | |
| 81 | | | | | | |
| 82 | | | | | | |
| 83 | | | | | | |
| 84 | | | | | | |
| 85 | | | | | | |
| 86 | | | | | | |
| 87 | | | | | | |
| 88 | | | | | | |
| 89 | | | | | | |
| 90 | | | | | | |

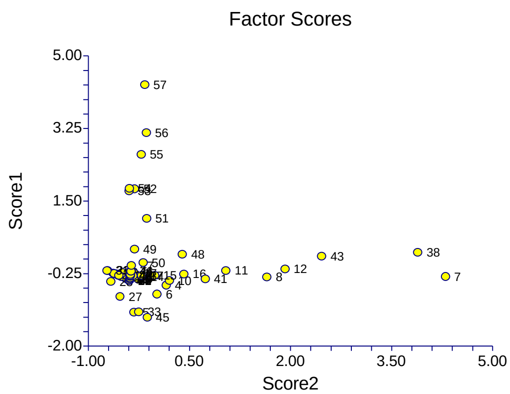
## Principal Components Report

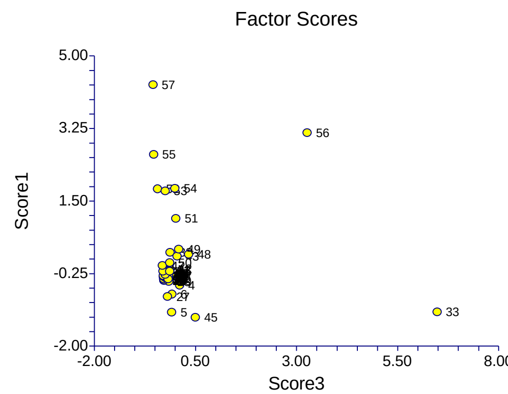
Page/Date/Time 8 03-16-2001 08:55:03
Database D:\Euan\FS12 Annual working\ ... s\PCA ordination\PCA data.S0

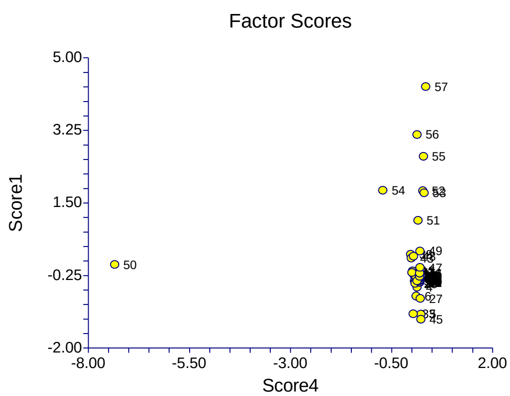
### Factor Score after Varimax Rotation

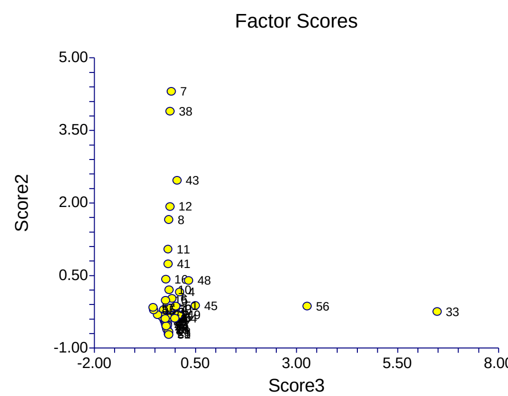
| | Factors | | | | | |
|---|---|---|---|---|---|---|
| **Row** | **Factor1** | **Factor2** | **Factor3** | **Factor4** | **Factor5** | **Factor6** |
| 91 | | | | | | |

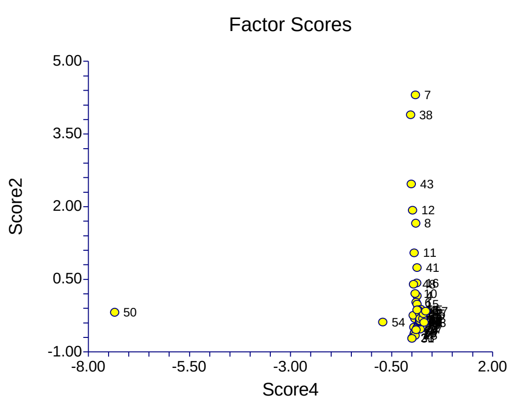
### Plots Section

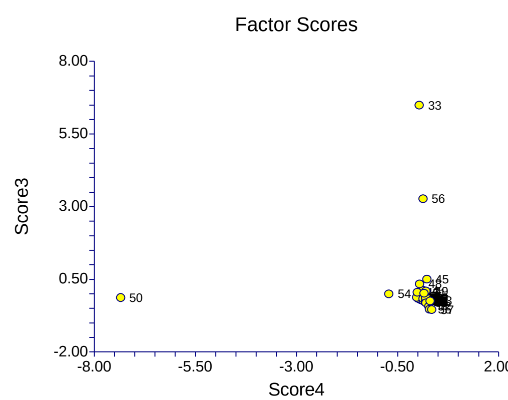


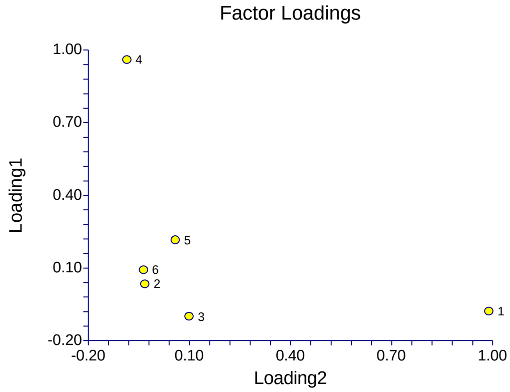



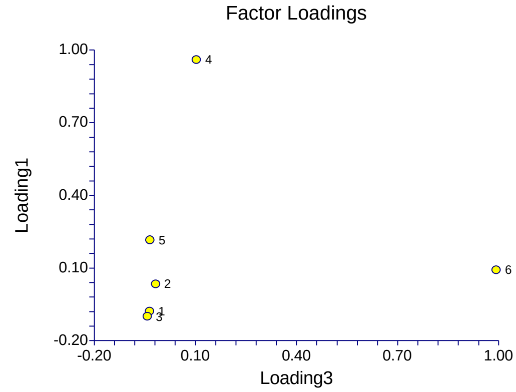



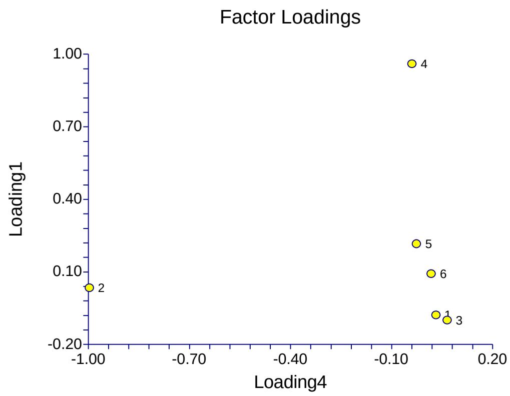



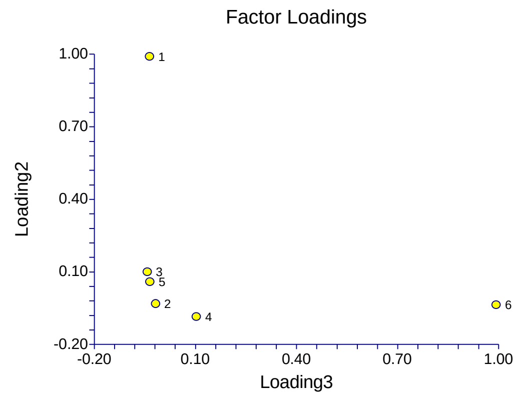
**Principal Components Report**

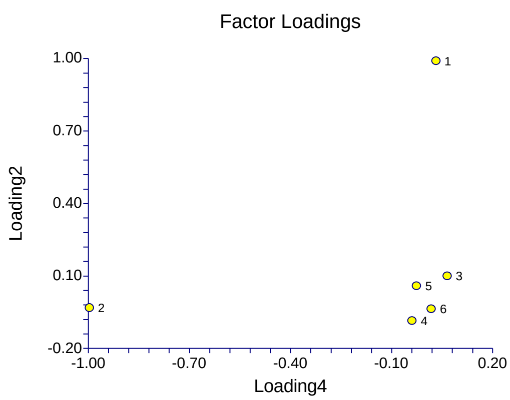
Page/Date/Time 9 03-16-2001 08:55:04
Database D:\Euan\FS12 Annual working\ ... s\PCA ordination\PCA data.S0

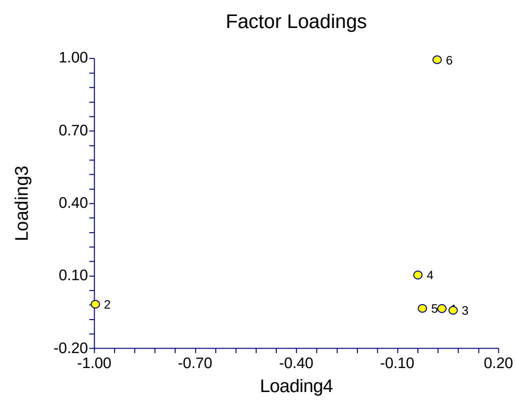


## Principal Components Report

Page/Date/Time 1 03-12-2001 10:47:55
Database D:\EUAN\FS12 ANNUAL WORKING\ ... S\PCA ORDINATION\PCA DATA.S0

### Descriptive Statistics Section

| Variables | Count | Mean | Standard Deviation | Communality |
|---|---|---|---|---|
| EDB | 91 | 1.289215 | 3.601552 | 1.000000 |
| EthylB | 91 | 14.44302 | 78.6049 | 1.000000 |
| Toluene | 91 | 176.0421 | 1382.932 | 1.000000 |
| Xylenes | 91 | 48.7 | 289.8865 | 1.000000 |
| Benzene | 91 | 7.898407 | 39.61614 | 1.000000 |
| X12DCA | 91 | 1.751648E-02 | 0.1066143 | 1.000000 |
| Chlorof | 91 | 0.4078297 | 0.5585672 | 1.000000 |

### Correlation Section

| | Variables | | | | |
|---|---|---|---|---|---|
| Variables | EDB | EthylB | Toluene | Xylenes | Benzene |
| EDB | 1.000000 | -0.059034 | -0.038137 | -0.052024 | 0.151085 |
| EthylB | -0.059034 | 1.000000 | 0.760250 | 0.922329 | -0.019412 |
| Toluene | -0.038137 | 0.760250 | 1.000000 | 0.844692 | -0.018710 |
| Xylenes | -0.052024 | 0.922329 | 0.844692 | 1.000000 | -0.012096 |
| Benzene | 0.151085 | -0.019412 | -0.018710 | -0.012096 | 1.000000 |
| X12DCA | 0.675477 | -0.030524 | -0.021147 | -0.027908 | -0.021359 |
| Chlorof | 0.259863 | -0.135647 | -0.093976 | -0.124023 | -0.102437 |

Phi=0.366504 Log(Det|R|)=-3.944634 Bartlett Test=342.53 DF=21 Prob=0.000000

| | Variables | |
|---|---|---|
| Variables | X12DCA | Chlorof |
| EDB | 0.675477 | 0.259863 |
| EthylB | -0.030524 | -0.135647 |
| Toluene | -0.021147 | -0.093976 |
| Xylenes | -0.027908 | -0.124023 |
| Benzene | -0.021359 | -0.102437 |
| X12DCA | 1.000000 | 0.260377 |
| Chlorof | 0.260377 | 1.000000 |

Phi=0.366504 Log(Det|R|)=-3.944634 Bartlett Test=342.53 DF=21 Prob=0.000000

### Bar Chart of Absolute Correlation Section

<table>
<tr><th></th><th>Variables</th><th></th><th></th><th></th><th></th></tr>
<tr><th>Variables</th><th>EDB</th><th>EthylB</th><th>Toluene</th><th>Xylenes</th><th>Benzene</th></tr>
<tr><td>EDB</td><td></td><td>||</td><td>|</td><td>||</td><td>||||</td></tr>
<tr><td>EthylB</td><td>||</td><td></td><td>||||||||||||||||</td><td>|||||||||||||||||||</td><td>|</td></tr>
<tr><td>Toluene</td><td>|</td><td>||||||||||||||||</td><td></td><td>|||||||||||||||||</td><td>|</td></tr>
<tr><td>Xylenes</td><td>||</td><td>|||||||||||||||||||</td><td>|||||||||||||||||</td><td></td><td>|</td></tr>
<tr><td>Benzene</td><td>||||</td><td>|</td><td>|</td><td>|</td><td></td></tr>
<tr><td>X12DCA</td><td>||||||||||||||</td><td>|</td><td>|</td><td>|</td><td>|</td></tr>
<tr><td>Chlorof</td><td>||||||</td><td>|||</td><td>||</td><td>|||</td><td>|||</td></tr>
</table>

Phi=0.366504 Log(Det|R|)=-3.944634 Bartlett Test=342.53 DF=21 Prob=0.000000

**Principal Components Report**

Page/Date/Time 2 03-12-2001 10:47:55
Database D:\EUAN\FS12 ANNUAL WORKING\ ... S\PCA ORDINATION\PCA DATA.S0

**Bar Chart of Absolute Correlation Section**

| | Variables | |
|---|---|---|
| **Variables** | **X12DCA** | **Chlorof** |
| EDB | \|\|\|\|\|\|\|\|\|\|\|\|\| | \|\|\|\|\|\| |
| EthylB | \| | \|\|\| |
| Toluene | \| | \|\| |
| Xylenes | \| | \|\|\| |
| Benzene | \| | \|\|\| |
| X12DCA | | \|\|\|\|\|\| |
| Chlorof | \|\|\|\|\|\| | |

Phi=0.366504 Log(Det|R|)=-3.944634 Bartlett Test=342.53 DF=21 Prob=0.000000

**Eigenvalues after Varimax Rotation**

| No. | Eigenvalue | Individual Percent | Cumulative Percent | Scree Plot |
|---|---|---|---|---|
| 1 | 2.610207 | 37.29 | 37.29 | \|\|\|\|\|\|\|\| |
| 2 | 1.010980 | 14.44 | 51.73 | \|\|\| |
| 3 | 1.004531 | 14.35 | 66.08 | \|\|\| |
| 4 | 1.008953 | 14.41 | 80.50 | \|\|\| |
| 5 | 0.976830 | 13.95 | 94.45 | \|\|\| |
| 6 | 0.320176 | 4.57 | 99.02 | \| |
| 7 | 0.068322 | 0.98 | 100.00 | \| |

**Eigenvectors after Varimax Rotation**

| | Factors | | | | |
|---|---|---|---|---|---|
| **Variables** | **Factor1** | **Factor2** | **Factor3** | **Factor4** | **Factor5** |
| EDB | 0.106818 | 0.645426 | 0.192102 | 0.173928 | 0.707550 |
| EthylB | -0.567169 | 0.096507 | -0.012378 | -0.021541 | -0.047381 |
| Toluene | -0.545332 | 0.113258 | -0.027305 | -0.067043 | 0.075249 |
| Xylenes | -0.583478 | 0.108273 | -0.011975 | -0.045187 | -0.012761 |
| Benzene | 0.016011 | 0.051089 | 0.879486 | -0.437422 | -0.179183 |
| X12DCA | 0.089283 | 0.644525 | -0.009127 | 0.339026 | -0.676534 |
| Chlorof | 0.144389 | 0.362683 | -0.434137 | -0.810230 | -0.038716 |

| | Factors | |
|---|---|---|
| **Variables** | **Factor6** | **Factor7** |
| EDB | 0.065070 | 0.000883 |
| EthylB | 0.575290 | 0.578952 |
| Toluene | -0.789790 | 0.234763 |
| Xylenes | 0.189352 | -0.780787 |
| Benzene | -0.012006 | 0.006962 |
| X12DCA | -0.062411 | -0.000903 |
| Chlorof | 0.033832 | 0.004780 |

## Principal Components Report

Page/Date/Time 3 03-12-2001 10:47:56
Database D:\EUAN\FS12 ANNUAL WORKING\ ... S\PCA ORDINATION\PCA DATA.S0

**Bar Chart of Absolute Eigenvectors after Varimax Rotation**

<table>
<tr><th></th><th>Factors</th><th></th><th></th><th></th><th></th></tr>
<tr><th>Variables</th><th>Factor1</th><th>Factor2</th><th>Factor3</th><th>Factor4</th><th>Factor5</th></tr>
<tr><td>EDB</td><td>|||</td><td>|||||||||||||</td><td>||||</td><td>||||</td><td>|||||||||||||||</td></tr>
<tr><td>EthylB</td><td>||||||||||||</td><td>||</td><td>|</td><td>|</td><td>|</td></tr>
<tr><td>Toluene</td><td>|||||||||||</td><td>|||</td><td>|</td><td>||</td><td>||</td></tr>
<tr><td>Xylenes</td><td>||||||||||||</td><td>|||</td><td>|</td><td>|</td><td>|</td></tr>
<tr><td>Benzene</td><td>|</td><td>||</td><td>||||||||||||||||||</td><td>|||||||||</td><td>||||</td></tr>
<tr><td>X12DCA</td><td>||</td><td>|||||||||||||</td><td>|</td><td>|||||||</td><td>||||||||||||||</td></tr>
<tr><td>Chlorof</td><td>|||</td><td>||||||||</td><td>|||||||||</td><td>|||||||||||||||||</td><td>|</td></tr>
</table>

<table>
<tr><th></th><th>Factors</th><th></th></tr>
<tr><th>Variables</th><th>Factor6</th><th>Factor7</th></tr>
<tr><td>EDB</td><td>||</td><td>|</td></tr>
<tr><td>EthylB</td><td>||||||||||||</td><td>||||||||||||</td></tr>
<tr><td>Toluene</td><td>||||||||||||||||</td><td>|||||</td></tr>
<tr><td>Xylenes</td><td>||||</td><td>||||||||||||||||</td></tr>
<tr><td>Benzene</td><td>|</td><td>|</td></tr>
<tr><td>X12DCA</td><td>||</td><td>|</td></tr>
<tr><td>Chlorof</td><td>|</td><td>|</td></tr>
</table>

**Factor Loadings after Varimax Rotation**

| | Factors | | | | |
|---|---|---|---|---|---|
| **Variables** | **Factor1** | **Factor2** | **Factor3** | **Factor4** | **Factor5** |
| EDB | 0.027784 | 0.369156 | 0.096416 | -0.127512 | 0.915091 |
| EthylB | -0.975567 | -0.007143 | -0.010262 | 0.061031 | -0.022581 |
| Toluene | -0.830073 | -0.007414 | -0.009201 | 0.027379 | -0.007301 |
| Xylenes | -0.981223 | -0.007747 | -0.002413 | 0.048149 | -0.016914 |
| Benzene | 0.011356 | -0.016019 | 0.995592 | 0.054295 | 0.073884 |
| X12DCA | 0.009129 | 0.928739 | -0.025837 | -0.122358 | 0.348882 |
| Chlorof | 0.075320 | 0.108288 | -0.056293 | -0.983861 | 0.106825 |

| | Factors | |
|---|---|---|
| **Variables** | **Factor6** | **Factor7** |
| EDB | 0.002302 | -0.000325 |
| EthylB | 0.088871 | 0.189686 |
| Toluene | -0.556703 | -0.010811 |
| Xylenes | -0.048039 | -0.179511 |
| Benzene | 0.002143 | -0.000351 |
| X12DCA | 0.001846 | -0.000354 |
| Chlorof | 0.006210 | -0.000345 |

## Principal Components Report

Page/Date/Time 4 03-12-2001 10:47:56
Database D:\EUAN\FS12 ANNUAL WORKING\ ... S\PCA ORDINATION\PCA DATA.S0

**Bar Chart of Absolute Factor Loadings after Varimax Rotation**

<table>
<tr><th></th><th>Factors</th><th></th><th></th><th></th><th></th></tr>
<tr><th>Variables</th><th>Factor1</th><th>Factor2</th><th>Factor3</th><th>Factor4</th><th>Factor5</th></tr>
<tr><td>EDB</td><td>|</td><td>||||||||</td><td>||</td><td>|||</td><td>|||||||||||||||||||</td></tr>
<tr><td>EthylB</td><td>||||||||||||||||||||</td><td>|</td><td>|</td><td>||</td><td>|</td></tr>
<tr><td>Toluene</td><td>|||||||||||||||||</td><td>|</td><td>|</td><td>|</td><td>|</td></tr>
<tr><td>Xylenes</td><td>||||||||||||||||||||</td><td>|</td><td>|</td><td>|</td><td>|</td></tr>
<tr><td>Benzene</td><td>|</td><td>|</td><td>||||||||||||||||||||</td><td>||</td><td>||</td></tr>
<tr><td>X12DCA</td><td>|</td><td>|||||||||||||||||||</td><td>|</td><td>|||</td><td>|||||||</td></tr>
<tr><td>Chlorof</td><td>||</td><td>|||</td><td>||</td><td>||||||||||||||||||||</td><td>|||</td></tr>
</table>

<table>
<tr><th></th><th>Factors</th><th></th></tr>
<tr><th>Variables</th><th>Factor6</th><th>Factor7</th></tr>
<tr><td>EDB</td><td>|</td><td>|</td></tr>
<tr><td>EthylB</td><td>||</td><td>||||</td></tr>
<tr><td>Toluene</td><td>||||||||||||</td><td>|</td></tr>
<tr><td>Xylenes</td><td>|</td><td>||||</td></tr>
<tr><td>Benzene</td><td>|</td><td>|</td></tr>
<tr><td>X12DCA</td><td>|</td><td>|</td></tr>
<tr><td>Chlorof</td><td>|</td><td>|</td></tr>
</table>

**Communalities after Varimax Rotation**

| | Factors | | | | |
|---|---|---|---|---|---|
| **Variables** | **Factor1** | **Factor2** | **Factor3** | **Factor4** | **Factor5** |
| EDB | 0.000772 | 0.136276 | 0.009296 | 0.016259 | 0.837392 |
| EthylB | 0.951730 | 0.000051 | 0.000105 | 0.003725 | 0.000510 |
| Toluene | 0.689022 | 0.000055 | 0.000085 | 0.000750 | 0.000053 |
| Xylenes | 0.962798 | 0.000060 | 0.000006 | 0.002318 | 0.000286 |
| Benzene | 0.000129 | 0.000257 | 0.991203 | 0.002948 | 0.005459 |
| X12DCA | 0.000083 | 0.862556 | 0.000668 | 0.014971 | 0.121719 |
| Chlorof | 0.005673 | 0.011726 | 0.003169 | 0.967981 | 0.011412 |

| | Factors | | |
|---|---|---|---|
| **Variables** | **Factor6** | **Factor7** | **Communality** |
| EDB | 0.000005 | 0.000000 | 1.000000 |
| EthylB | 0.007898 | 0.035981 | 1.000000 |
| Toluene | 0.309919 | 0.000117 | 1.000000 |
| Xylenes | 0.002308 | 0.032224 | 1.000000 |
| Benzene | 0.000005 | 0.000000 | 1.000000 |
| X12DCA | 0.000003 | 0.000000 | 1.000000 |
| Chlorof | 0.000039 | 0.000000 | 1.000000 |

## Principal Components Report

Page/Date/Time 5 03-12-2001 10:47:56
Database D:\EUAN\FS12 ANNUAL WORKING\ ... S\PCA ORDINATION\PCA DATA.S0

### Bar Chart of Communalities after Varimax Rotation

| | Factors | | | | |
|---|---|---|---|---|---|
| **Variables** | **Factor1** | **Factor2** | **Factor3** | **Factor4** | **Factor5** |
| EDB | \| | \|\|\| | \| | \| | \|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\| |
| EthylB | \|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\| | \| | \| | \| | \| |
| Toluene | \|\|\|\|\|\|\|\|\|\|\|\|\|\| | \| | \| | \| | \| |
| Xylenes | \|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\| | \| | \| | \| | \| |
| Benzene | \| | \| | \|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\| | \| | \| |
| X12DCA | \| | \|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\| | \| | \| | \|\|\| |
| Chlorof | \| | \| | \| | \|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\| | \| |

| | Factors | | |
|---|---|---|---|
| **Variables** | **Factor6** | **Factor7** | **Communality** |
| EDB | \| | \| | \|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\| |
| EthylB | \| | \| | \|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\| |
| Toluene | \|\|\|\|\|\|\| | \| | \|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\| |
| Xylenes | \| | \| | \|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\| |
| Benzene | \| | \| | \|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\| |
| X12DCA | \| | \| | \|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\| |
| Chlorof | \| | \| | \|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\|\| |

### Factor Structure Summary after Varimax Rotation

| | Factors | | | | |
|---|---|---|---|---|---|
| **Factor1** | **Factor2** | **Factor3** | **Factor4** | **Factor5** | **Factor6** |
| Xylenes | X12DCA | Benzene | Chlorof | EDB | Toluene |
| EthylB | | | | | |
| Toluene | | | | | |

| | Factors |
|---|---|
| **Factor1** | **Factor7** |
| Xylenes | |
| EthylB | |
| Toluene | |

## Principal Components Report

Page/Date/Time 6 03-12-2001 10:47:56
Database D:\EUAN\FS12 ANNUAL WORKING\ ... S\PCA ORDINATION\PCA DATA.S0

### Score Coefficients after Varimax Rotation

| | Factors | | | | |
|---|---|---|---|---|---|
| **Variables** | **Factor1** | **Factor2** | **Factor3** | **Factor4** | **Factor5** |
| EDB | -1.637706E-02 | -0.4837916 | -0.1102447 | 9.451205E-02 | 1.313188 |
| EthylB | -0.4862055 | -3.671164E-03 | 5.977525E-03 | -3.347188E-02 | 1.012768E-02 |
| Toluene | -3.417001E-02 | 1.392843E-03 | 4.980166E-03 | -1.378626E-02 | 2.686679E-03 |
| Xylenes | -0.5115652 | -5.577858E-03 | 3.990146E-03 | -3.272994E-02 | 9.672329E-03 |
| Benzene | -7.975533E-03 | 7.480274E-02 | 1.020275 | -0.0667407 | -0.1467033 |
| X12DCA | 4.50791E-03 | 1.281092 | 0.0540067 | 8.268082E-02 | -0.5110771 |
| Chlorof | -5.502471E-02 | -9.295604E-02 | 6.458078E-02 | -1.046681 | -0.1135529 |

| | Factors | |
|---|---|---|
| **Variables** | **Factor6** | **Factor7** |
| EDB | 1.995239E-02 | 8.157059E-03 |
| EthylB | 0.675218 | 2.467095 |
| Toluene | -1.758842 | 0.6533802 |
| Xylenes | 0.8193635 | -3.003203 |
| Benzene | -7.805138E-03 | 2.466393E-02 |
| X12DCA | -1.377845E-02 | -6.636724E-03 |
| Chlorof | 3.173515E-02 | 2.537922E-02 |

### Factor Score after Varimax Rotation

| | Factors | | | | | |
|---|---|---|---|---|---|---|
| **Row** | **Factor1** | **Factor2** | **Factor3** | **Factor4** | **Factor5** | **Factor6** |
| 1 | 0.0787 | -0.2325 | -0.0490 | -2.0673 | -0.5827 | 0.0209 |
| 2 | 0.0983 | -0.2043 | -0.0732 | -1.6915 | -0.5284 | 0.0098 |
| 3 | 0.0760 | -0.3126 | -0.0601 | -2.0520 | -0.3650 | 0.0242 |
| 4 | 0.1555 | -0.3840 | 0.8139 | -0.1859 | 0.5425 | -0.0277 |
| 5 | 0.2104 | -0.0975 | 0.9164 | 0.7054 | 0.0988 | -0.0651 |
| 6 | 0.1061 | -0.5522 | 0.3252 | -1.1358 | 0.6219 | 0.0082 |
| 7 | 0.1151 | -2.5658 | 1.4808 | 1.1290 | 6.8618 | 0.0314 |
| 8 | 0.1204 | -1.2417 | 0.7654 | -0.1209 | 2.8455 | 0.0095 |
| 9 | 0.0854 | -0.4314 | -0.0654 | -1.7452 | 0.0582 | 0.0214 |
| 10 | 0.1013 | -0.6446 | -0.1384 | -1.2277 | 0.8016 | 0.0176 |
| 11 | 0.0937 | -1.0725 | -0.2855 | -1.0086 | 2.0065 | 0.0319 |
| 12 | 0.0680 | 2.4407 | -0.1888 | -1.0536 | 1.7873 | 0.0225 |
| 13 | 0.1905 | -0.0452 | -0.1805 | 0.0598 | -0.3479 | -0.0435 |
| 14 | 0.1686 | -0.2258 | -0.1956 | -0.2290 | 0.0310 | -0.0276 |
| 15 | 0.1588 | -0.3506 | -0.2148 | -0.3190 | 0.3305 | -0.0194 |
| 16 | 0.1565 | -0.5824 | -0.2768 | -0.1593 | 0.9990 | -0.0129 |
| 17 | 0.1031 | -0.3371 | -0.1188 | -1.4749 | -0.1024 | 0.0102 |
| 18 | 0.0935 | -0.2076 | -0.0663 | -1.7862 | -0.5522 | 0.0124 |
| 19 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 20 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 21 | 0.2264 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0695 |
| 22 | 0.1546 | -0.1044 | -0.1380 | -0.6244 | -0.4262 | -0.0228 |
| 23 | 0.0269 | -0.3239 | 0.0108 | -3.0503 | -0.6785 | 0.0509 |
| 24 | 0.1246 | -0.1552 | -0.1027 | -1.1959 | -0.4882 | -0.0055 |
| 25 | 0.0886 | -0.2159 | -0.0605 | -1.8799 | -0.5624 | 0.0152 |
| 26 | 0.2048 | -0.0205 | -0.1972 | 0.3315 | -0.3198 | -0.0518 |
| 27 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 28 | 0.0985 | -0.1993 | -0.0721 | -1.6925 | -0.5421 | 0.0095 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 29 | 0.1300 | -0.1460 | -0.1091 | -1.0929 | -0.4770 | -0.0086 |
| 30 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 31 | 0.0246 | -0.3241 | 0.0146 | -3.0979 | -0.6945 | 0.0522 |
| 32 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 33 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0645 |
| 34 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 35 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 36 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 37 | 0.2232 | -0.0803 | -0.2446 | 0.7625 | -0.0134 | -0.0603 |
| 38 | 0.0542 | 8.0794 | -0.0941 | -0.4094 | 2.0658 | -0.0052 |
| 39 | 0.2257 | -0.0078 | -0.2280 | 0.7484 | -0.2103 | -0.0633 |
| 40 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 41 | 0.1496 | -0.7801 | 0.0057 | -0.0712 | 1.5773 | -0.0080 |
| 42 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 43 | 0.0444 | 2.2889 | -0.2797 | -1.2637 | 2.4880 | 0.0416 |
| 44 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 45 | 0.2111 | -0.3164 | 0.0929 | 0.7883 | 0.6495 | -0.0524 |

**Principal Components Report**

Page/Date/Time 7 03-12-2001 10:47:56
Database D:\EUAN\FS12 ANNUAL WORKING\ ... S\PCA ORDINATION\PCA DATA.S0

**Factor Score after Varimax Rotation**

| Row | Factors Factor7 |
|---|---|
| 1 | 0.0109 |
| 2 | 0.0019 |
| 3 | 0.0125 |
| 4 | -0.0020 |
| 5 | -0.0252 |
| 6 | 0.0097 |
| 7 | 0.0455 |
| 8 | 0.0182 |
| 9 | 0.0092 |
| 10 | 0.0025 |
| 11 | 0.0057 |
| 12 | 0.0042 |
| 13 | -0.0406 |
| 14 | -0.0303 |
| 15 | -0.0257 |
| 16 | -0.0243 |
| 17 | -0.0001 |
| 18 | 0.0041 |
| 19 | -0.0572 |
| 20 | -0.0572 |
| 21 | -0.0553 |
| 22 | -0.0241 |
| 23 | 0.0348 |
| 24 | -0.0102 |
| 25 | 0.0064 |
| 26 | -0.0472 |
| 27 | -0.0572 |
| 28 | 0.0018 |
| 29 | -0.0127 |
| 30 | -0.0572 |
| 31 | 0.0359 |
| 32 | -0.0572 |
| 33 | -0.0572 |
| 34 | -0.0572 |
| 35 | -0.0572 |
| 36 | -0.0572 |
| 37 | -0.0556 |
| 38 | -0.0108 |
| 39 | -0.0568 |
| 40 | -0.0572 |
| 41 | -0.0139 |
| 42 | -0.0572 |
| 43 | 0.0138 |
| 44 | -0.0572 |
| 45 | -0.0415 |

## Principal Components Report

Page/Date/Time 8 03-12-2001 10:47:56
Database D:\EUAN\FS12 ANNUAL WORKING\ ... S\PCA ORDINATION\PCA DATA.S0

**Factor Score after Varimax Rotation**

| Row | Factors Factor1 | Factor2 | Factor3 | Factor4 | Factor5 | Factor6 |
|---|---|---|---|---|---|---|
| 46 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 47 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 48 | 0.0696 | -0.7767 | -0.1883 | -1.7703 | 0.9599 | 0.0384 |
| 49 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0656 |
| 50 | 0.2042 | 0.0180 | -0.2077 | 0.7411 | -0.2794 | -0.0330 |
| 51 | 0.1562 | -0.2300 | -0.1762 | -0.4807 | -0.0443 | -0.0208 |
| 52 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 53 | 0.1527 | 0.6695 | 9.0543 | 0.1416 | -1.5360 | -0.1513 |
| 54 | 0.2182 | 0.0696 | 0.5113 | 0.6956 | -0.3797 | -0.0663 |
| 55 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 56 | 0.1467 | -0.1177 | -0.1287 | -0.7743 | -0.4424 | -0.0183 |
| 57 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 58 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 59 | 0.2265 | 0.0166 | -0.2225 | 0.7436 | -0.2765 | -0.0643 |
| 60 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 61 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 62 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 63 | 0.1845 | 0.0744 | 0.5636 | 0.6896 | -0.3900 | -0.0219 |
| 64 | 0.1856 | -0.0520 | -0.1744 | -0.0341 | -0.3621 | -0.0407 |
| 65 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 66 | 0.1077 | -0.2001 | -0.0876 | -1.5017 | -0.4743 | 0.0046 |
| 67 | 0.1473 | -0.1293 | -0.1329 | -0.7530 | -0.4043 | -0.0183 |
| 68 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 69 | 0.1704 | -0.0778 | -0.1565 | -0.3246 | -0.3936 | -0.0319 |
| 70 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 71 | 0.1674 | -0.0828 | -0.1530 | -0.3808 | -0.3997 | -0.0302 |
| 72 | 0.1674 | -0.0828 | -0.1530 | -0.3808 | -0.3997 | -0.0302 |
| 73 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 74 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 75 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 76 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 77 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 78 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 79 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 80 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 81 | 0.1694 | -0.0794 | -0.1553 | -0.3433 | -0.3957 | -0.0314 |
| 82 | 0.2265 | 0.0161 | -0.2226 | 0.7437 | -0.2752 | -0.0643 |
| 83 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 84 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |
| 85 | -6.8062 | -0.0649 | -0.1167 | 0.1758 | -0.0322 | -6.5073 |
| 86 | -3.4419 | -0.0133 | -0.1797 | 0.4906 | -0.2024 | 4.3991 |
| 87 | -5.3618 | -0.0342 | 0.1560 | 0.3388 | -0.1430 | 5.2974 |
| 88 | 0.1852 | -0.1067 | -0.1892 | 0.0051 | -0.2038 | -0.0392 |
| 89 | 0.1766 | -0.1134 | -0.1769 | -0.1651 | -0.2445 | -0.0345 |
| 90 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |

**Principal Components Report**

Page/Date/Time 9 03-12-2001 10:47:56
Database D:\EUAN\FS12 ANNUAL WORKING\ ... S\PCA ORDINATION\PCA DATA.S0

**Factor Score after Varimax Rotation**

| **Row** | **Factors Factor7** |
|---|---|
| 46 | -0.0572 |
| 47 | -0.0572 |
| 48 | 0.0158 |
| 49 | -0.0568 |
| 50 | 0.0228 |
| 51 | -0.0246 |
| 52 | -0.0572 |
| 53 | 0.1740 |
| 54 | -0.0264 |
| 55 | -0.0572 |
| 56 | -0.0204 |
| 57 | -0.0572 |
| 58 | -0.0572 |
| 59 | -0.0572 |
| 60 | -0.0572 |
| 61 | -0.0572 |
| 62 | -0.0572 |
| 63 | 0.1443 |
| 64 | -0.0384 |
| 65 | -0.0572 |
| 66 | -0.0024 |
| 67 | -0.0207 |
| 68 | -0.0572 |
| 69 | -0.0313 |
| 70 | -0.0572 |
| 71 | -0.0300 |
| 72 | -0.0300 |
| 73 | -0.0572 |
| 74 | -0.0572 |
| 75 | -0.0572 |
| 76 | -0.0572 |
| 77 | -0.0572 |
| 78 | -0.0572 |
| 79 | -0.0572 |
| 80 | -0.0572 |
| 81 | -0.0309 |
| 82 | -0.0572 |
| 83 | -0.0572 |
| 84 | -0.0572 |
| 85 | 0.5405 |
| 86 | 7.5802 |
| 87 | -5.6599 |
| 88 | -0.0381 |
| 89 | -0.0341 |
| 90 | -0.0572 |

# Principal Components Report

Page/Date/Time 10 03-12-2001 10:47:56
Database D:\EUAN\FS12 ANNUAL WORKING\ ... S\PCA ORDINATION\PCA DATA.S0

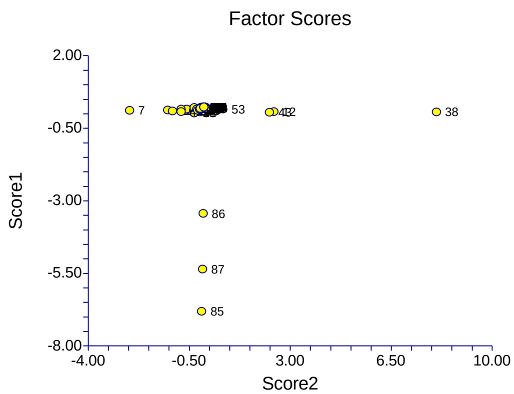
## Factor Score after Varimax Rotation

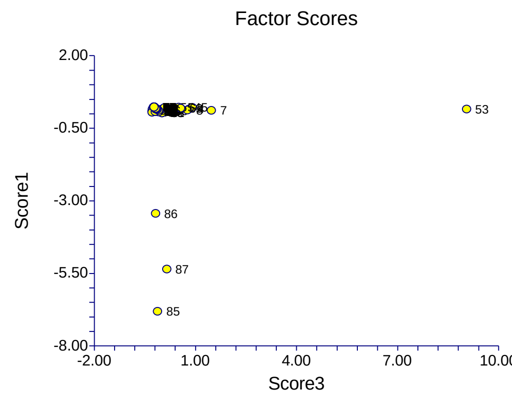
| | Factors | | | | | |
|---|---|---|---|---|---|---|
| **Row** | **Factor1** | **Factor2** | **Factor3** | **Factor4** | **Factor5** | **Factor6** |
| 91 | 0.2265 | 0.0171 | -0.2224 | 0.7435 | -0.2778 | -0.0643 |

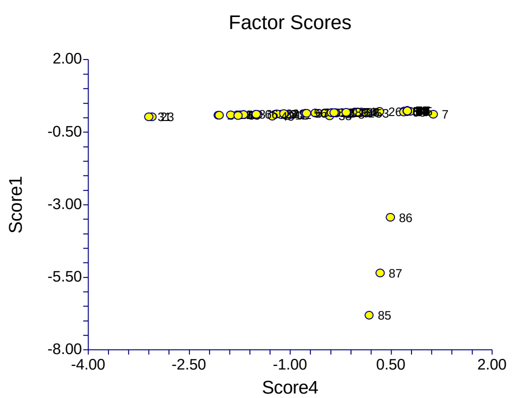
## Factor Score after Varimax Rotation

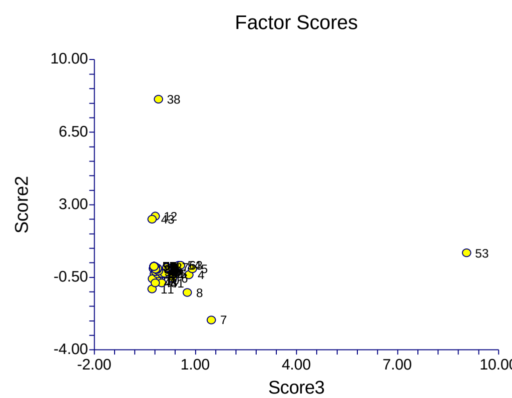
| | Factors |
|---|---|
| **Row** | **Factor7** |
| 91 | -0.0572 |

## Plots Section



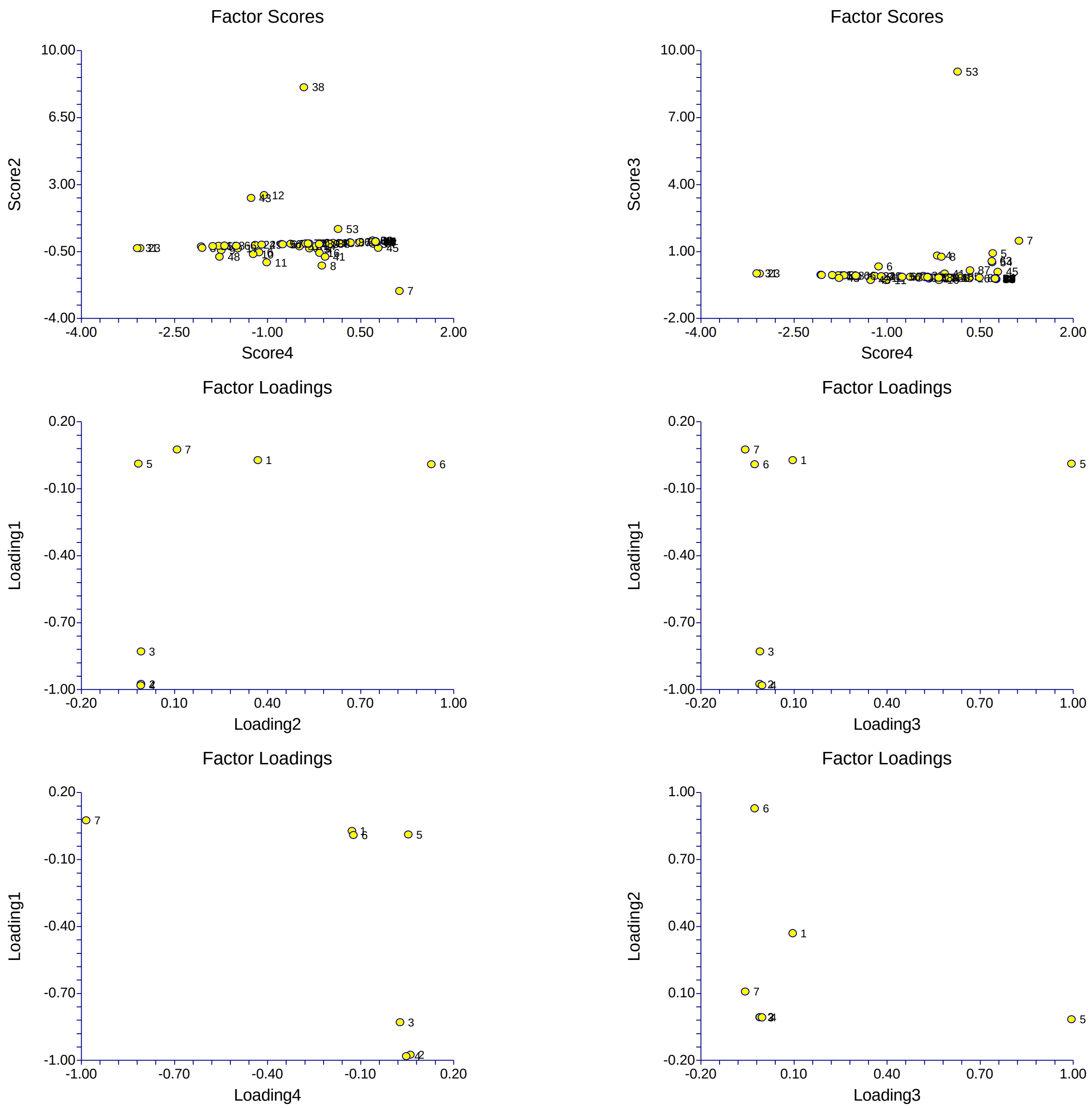



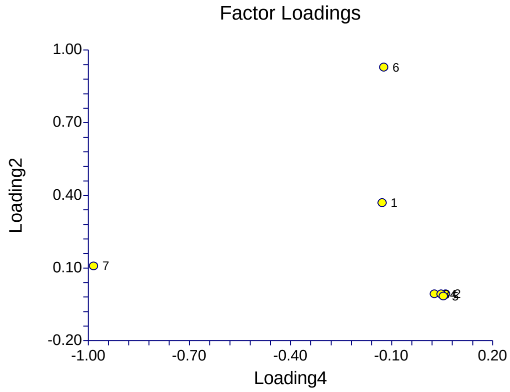
## Principal Components Report

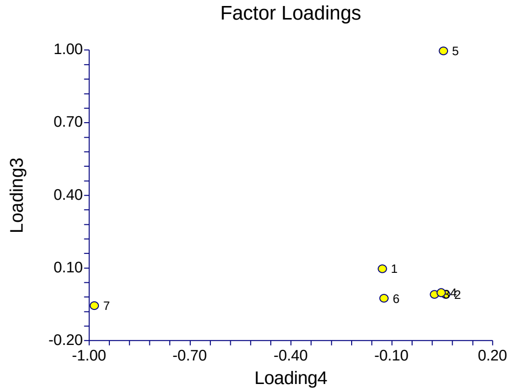
Page/Date/Time 11 03-12-2001 10:47:58
Database D:\EUAN\FS12 ANNUAL WORKING\ ... S\PCA ORDINATION\PCA DATA.S0



**Principal Components Report**

Page/Date/Time 12 03-12-2001 10:47:58
Database D:\EUAN\FS12 ANNUAL WORKING\ ... S\PCA ORDINATION\PCA DATA.S0



**Descriptive Statistics Report**

Page/Date/Time 1 11-17-2001 17:35:24
Database I:\35Z01503\FS-12 SPEIM\Asse ... hem for descriptive stats.S0

**Summary Section of alk when ref_loc=PTPref**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 18 | 10.04444 | 4.133219 | 0.974209 | 2.85 | 18.8 | 15.95 |

**Counts Section of alk when ref_loc=PTPref**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 37 | 18 | 0 | 17 | 180.8 | 2106.455 | 290.4194 |

**Means Section of alk when ref_loc=PTPref**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 10.04444 | 10.7 | 9.157248 | 8.171872 | 180.8 | 12.5 |
| Std Error | 0.974209 | | | | 17.53576 | |
| 95% LCL | 7.989043 | | | | 143.8028 | |
| 95% UCL | 12.09985 | | | | 217.7972 | |
| T-Value | 10.3104 | | | | | |
| Prob Level | 0.000000 | | | | | |
| Count | 18 | | 18 | 18 | | 2 |

**Summary Section of alk when ref_loc=SNP**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 9 | 4.605556 | 1.488381 | 0.496127 | 2.5 | 6.5 | 4 |

**Counts Section of alk when ref_loc=SNP**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 37 | 9 | 0 | 9 | 41.45 | 208.6225 | 17.72222 |

**Means Section of alk when ref_loc=SNP**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 4.605556 | 5.1 | 4.367586 | 4.115137 | 41.45 | 2.5 |
| Std Error | 0.496127 | | | | 4.465143 | |
| 95% LCL | 3.461485 | | | | 31.15336 | |
| 95% UCL | 5.749627 | | | | 51.74664 | |
| T-Value | 9.2830 | | | | | |
| Prob Level | 0.000015 | | | | | |
| Count | 9 | | 9 | 9 | | 1 |

**Summary Section of alk when ref_loc=TRPref**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 9 | 2.9 | 1.011805 | 0.3372684 | 1.65 | 4.3 | 2.65 |

# Descriptive Statistics Report

Page/Date/Time 2 11-17-2001 17:35:24
Database I:\35Z01503\FS-12 SPEIM\Asse ... hem for descriptive stats.S0

**Counts Section of alk when ref_loc=TRPref**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 37 | 9 | 1 | 9 | 26.1 | 83.88 | 8.19 |

**Means Section of alk when ref_loc=TRPref**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 2.9 | 3.05 | 2.737955 | 2.581068 | 26.1 | 1.65 |
| Std Error | 0.3372684 | | | | 3.035416 | |
| 95% LCL | 2.122257 | | | | 19.10032 | |
| 95% UCL | 3.677742 | | | | 33.09968 | |
| T-Value | 8.5985 | | | | | |
| Prob Level | 0.000026 | | | | | |
| Count | 9 | | 9 | 9 | | 1 |

**Summary Section of chl_a when ref_loc=PTPref**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 18 | 1.85 | 0.5913594 | 0.1393847 | 1.1 | 3.2 | 2.1 |

**Counts Section of chl_a when ref_loc=PTPref**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 37 | 18 | 0 | 11 | 33.3 | 67.55 | 5.945 |

**Means Section of chl_a when ref_loc=PTPref**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 1.85 | 1.8 | 1.76665 | 1.689953 | 33.3 | 1.8 |
| Std Error | 0.1393847 | | | | 2.508925 | |
| 95% LCL | 1.555924 | | | | 28.00663 | |
| 95% UCL | 2.144076 | | | | 38.59337 | |
| T-Value | 13.2726 | | | | | |
| Prob Level | 0.000000 | | | | | |
| Count | 18 | | 18 | 18 | | 3 |

**Summary Section of chl_a when ref_loc=SNP**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 9 | 3.8 | 1.672573 | 0.5575243 | 1.9 | 6.3 | 4.4 |

**Counts Section of chl_a when ref_loc=SNP**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 37 | 9 | 0 | 9 | 34.2 | 152.34 | 22.38 |

## Descriptive Statistics Report

Page/Date/Time 3 11-17-2001 17:35:24
Database I:\35Z01503\FS-12 SPEIM\Asse ... hem for descriptive stats.S0

**Means Section of chl_a when ref_loc=SNP**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 3.8 | 3.8 | 3.470741 | 3.169085 | 34.2 | 1.9 |
| Std Error | 0.5575243 | | | | 5.017719 | |
| 95% LCL | 2.514347 | | | | 22.62912 | |
| 95% UCL | 5.085653 | | | | 45.77088 | |
| T-Value | 6.8158 | | | | | |
| Prob Level | 0.000136 | | | | | |
| Count | 9 | | 9 | 9 | | 1 |

**Summary Section of chl_a when ref_loc=TRPref**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 9 | 2.977778 | 2.082533 | 0.6941777 | 0.9 | 7.3 | 6.4 |

**Counts Section of chl_a when ref_loc=TRPref**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 37 | 9 | 1 | 9 | 26.8 | 114.5 | 34.69556 |

**Means Section of chl_a when ref_loc=TRPref**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 2.977778 | 2.6 | 2.406483 | 1.96444 | 26.8 | 0.9 |
| Std Error | 0.6941777 | | | | 6.2476 | |
| 95% LCL | 1.377001 | | | | 12.39301 | |
| 95% UCL | 4.578555 | | | | 41.20699 | |
| T-Value | 4.2896 | | | | | |
| Prob Level | 0.002653 | | | | | |
| Count | 9 | | 9 | 9 | | 1 |

**Summary Section of nitrogen when ref_loc=PTPref**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 18 | 268.1945 | 89.69018 | 21.14018 | 123 | 519 | 396 |

**Counts Section of nitrogen when ref_loc=PTPref**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 37 | 18 | 0 | 18 | 4827.5 | 1431462 | 136753.6 |

## Descriptive Statistics Report

Page/Date/Time 4 11-17-2001 17:35:24
Database I:\35Z01503\FS-12 SPEIM\Asse ... hem for descriptive stats.S0

**Means Section of nitrogen when ref_loc=PTPref**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 268.1945 | 266.5 | 254.2108 | 239.6401 | 4827.5 | 123 |
| Std Error | 21.14018 | | | | 380.5232 | |
| 95% LCL | 223.5926 | | | | 4024.666 | |
| 95% UCL | 312.7963 | | | | 5630.334 | |
| T-Value | 12.6865 | | | | | |
| Prob Level | 0.000000 | | | | | |
| Count | 18 | | 18 | 18 | | 1 |

**Summary Section of nitrogen when ref_loc=SNP**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 9 | 213.1667 | 60.58362 | 20.19454 | 164 | 368 | 204 |

**Counts Section of nitrogen when ref_loc=SNP**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 37 | 9 | 0 | 9 | 1918.5 | 438323.3 | 29363 |

**Means Section of nitrogen when ref_loc=SNP**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 213.1667 | 199 | 207.358 | 202.952 | 1918.5 | 164 |
| Std Error | 20.19454 | | | | 181.7509 | |
| 95% LCL | 166.598 | | | | 1499.382 | |
| 95% UCL | 259.7354 | | | | 2337.618 | |
| T-Value | 10.5557 | | | | | |
| Prob Level | 0.000006 | | | | | |
| Count | 9 | | 9 | 9 | | 1 |

**Summary Section of nitrogen when ref_loc=TRPref**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 9 | 188.7056 | 70.75737 | 23.58579 | 4.35 | 225 | 220.65 |

**Counts Section of nitrogen when ref_loc=TRPref**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 37 | 9 | 1 | 8 | 1698.35 | 360540.9 | 40052.84 |

# Descriptive Statistics Report

Page/Date/Time 5 11-17-2001 17:35:24
Database I:\35Z01503\FS-12 SPEIM\Asse ... hem for descriptive stats.S0

**Means Section of nitrogen when ref_loc=TRPref**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 188.7056 | 213 | 137.1866 | 33.59802 | 1698.35 | 225 |
| Std Error | 23.58579 | | | | 212.2721 | |
| 95% LCL | 134.3166 | | | | 1208.85 | |
| 95% UCL | 243.0945 | | | | 2187.85 | |
| T-Value | 8.0008 | | | | | |
| Prob Level | 0.000044 | | | | | |
| Count | 9 | | 9 | 9 | | 2 |

**Summary Section of ammon when ref_loc=PTPref**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 18 | 20.275 | 16.76343 | 3.951177 | 2.5 | 55.2 | 52.7 |

**Counts Section of ammon when ref_loc=PTPref**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 37 | 18 | 0 | 17 | 364.95 | 12176.57 | 4777.211 |

**Means Section of ammon when ref_loc=PTPref**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 20.275 | 15.375 | 14.3674 | 9.481031 | 364.95 | 2.5 |
| Std Error | 3.951177 | | | | 71.12119 | |
| 95% LCL | 11.93874 | | | | 214.8974 | |
| 95% UCL | 28.61126 | | | | 515.0026 | |
| T-Value | 5.1314 | | | | | |
| Prob Level | 0.000083 | | | | | |
| Count | 18 | | 18 | 18 | | 2 |

**Summary Section of ammon when ref_loc=SNP**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 9 | 4.266667 | 3.300757 | 1.100253 | 2.5 | 12.3 | 9.8 |

**Counts Section of ammon when ref_loc=SNP**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 37 | 9 | 0 | 4 | 38.4 | 251 | 87.16 |

## Descriptive Statistics Report

Page/Date/Time 6 11-17-2001 17:35:25
Database I:\35Z01503\FS-12 SPEIM\Asse ... hem for descriptive stats.S0

**Means Section of ammon when ref_loc=SNP**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 4.266667 | 2.5 | 3.558903 | 3.163183 | 38.4 | 2.5 |
| Std Error | 1.100253 | | | | 9.902272 | |
| 95% LCL | 1.72948 | | | | 15.56532 | |
| 95% UCL | 6.803854 | | | | 61.23468 | |
| T-Value | 3.8779 | | | | | |
| Prob Level | 0.004689 | | | | | |
| Count | 9 | | 9 | 9 | | 6 |

**Summary Section of ammon when ref_loc=TRPref**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 9 | 5.5 | 3.625259 | 1.20842 | 2.5 | 14.3 | 11.8 |

**Counts Section of ammon when ref_loc=TRPref**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 37 | 9 | 1 | 7 | 49.5 | 377.39 | 105.14 |

**Means Section of ammon when ref_loc=TRPref**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 5.5 | 5.2 | 4.715621 | 4.135112 | 49.5 | 2.5 |
| Std Error | 1.20842 | | | | 10.87578 | |
| 95% LCL | 2.71338 | | | | 24.42042 | |
| 95% UCL | 8.28662 | | | | 74.57958 | |
| T-Value | 4.5514 | | | | | |
| Prob Level | 0.001871 | | | | | |
| Count | 9 | | 9 | 9 | | 3 |

**Summary Section of nitrate when ref_loc=PTPref**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 18 | 34.475 | 43.01688 | 10.13918 | 0.45 | 122 | 121.55 |

**Counts Section of nitrate when ref_loc=PTPref**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 37 | 18 | 0 | 17 | 620.55 | 52851.14 | 31457.68 |

## Descriptive Statistics Report



**Means Section of nitrate when ref_loc=PTPref**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 34.475 | 12.75 | 11.82261 | 2.804199 | 620.55 | 0.45 |
| Std Error | 10.13918 | | | | 182.5052 | |
| 95% LCL | 13.08321 | | | | 235.4978 | |
| 95% UCL | 55.86679 | | | | 1005.602 | |
| T-Value | 3.4002 | | | | | |
| Prob Level | 0.003406 | | | | | |
| Count | 18 | | 18 | 18 | | 2 |

**Summary Section of nitrate when ref_loc=SNP**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 9 | 3.5 | 4.052777 | 1.350926 | 0.45 | 10.9 | 10.45 |

**Counts Section of nitrate when ref_loc=SNP**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 37 | 9 | 0 | 7 | 31.5 | 241.65 | 131.4 |

**Means Section of nitrate when ref_loc=SNP**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 3.5 | 1.8 | 1.743491 | 0.9550306 | 31.5 | 0.45 |
| Std Error | 1.350926 | | | | 12.15833 | |
| 95% LCL | 0.38476 | | | | 3.46284 | |
| 95% UCL | 6.61524 | | | | 59.53716 | |
| T-Value | 2.5908 | | | | | |
| Prob Level | 0.032072 | | | | | |
| Count | 9 | | 9 | 9 | | 3 |

**Summary Section of nitrate when ref_loc=TRPref**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 9 | 14.86111 | 18.17159 | 6.057197 | 1.3 | 40.2 | 38.9 |

**Counts Section of nitrate when ref_loc=TRPref**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 37 | 9 | 1 | 9 | 133.75 | 4629.328 | 2641.654 |

## Descriptive Statistics Report

Page/Date/Time 8 11-17-2001 17:35:25
Database I:\35Z01503\FS-12 SPEIM\Asse ... hem for descriptive stats.S0

**Means Section of nitrate when ref_loc=TRPref**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 14.86111 | 3.75 | 6.257936 | 3.313567 | 133.75 | 1.3 |
| Std Error | 6.057197 | | | | 54.51477 | |
| 95% LCL | 0.8931894 | | | | 8.038705 | |
| 95% UCL | 28.82903 | | | | 259.4613 | |
| T-Value | 2.4535 | | | | | |
| Prob Level | 0.039722 | | | | | |
| Count | 9 | | 9 | 9 | | 1 |

**Summary Section of nitrite when ref_loc=PTPref**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 18 | 1.397222 | 1.012201 | 0.238578 | 0.55 | 4.4 | 3.85 |

**Counts Section of nitrite when ref_loc=PTPref**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 37 | 18 | 0 | 12 | 25.15 | 52.5575 | 17.41736 |

**Means Section of nitrite when ref_loc=PTPref**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 1.397222 | 1 | 1.160463 | 1.008132 | 25.15 | 0.8 |
| Std Error | 0.238578 | | | | 4.294405 | |
| 95% LCL | 0.8938665 | | | | 16.0896 | |
| 95% UCL | 1.900578 | | | | 34.2104 | |
| T-Value | 5.8565 | | | | | |
| Prob Level | 0.000019 | | | | | |
| Count | 18 | | 18 | 18 | | 4 |

**Summary Section of nitrite when ref_loc=SNP**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 9 | 1.35 | 1.108772 | 0.3695906 | 0.7 | 3.4 | 2.7 |

**Counts Section of nitrite when ref_loc=SNP**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 37 | 9 | 0 | 7 | 12.15 | 26.2375 | 9.835 |

## Descriptive Statistics Report

Page/Date/Time 9 11-17-2001 17:35:25
Database I:\35Z01503\FS-12 SPEIM\Asse ... hem for descriptive stats.S0

**Means Section of nitrite when ref_loc=SNP**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 1.35 | 0.85 | 1.084775 | 0.9462582 | 12.15 | |
| Std Error | 0.3695906 | | | | 3.326316 | |
| 95% LCL | 0.4977225 | | | | 4.479503 | |
| 95% UCL | 2.202277 | | | | 19.8205 | |
| T-Value | 3.6527 | | | | | |
| Prob Level | 0.006469 | | | | | |
| Count | 9 | | 9 | 9 | | |

**Summary Section of nitrite when ref_loc=TRPref**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 9 | 1.277778 | 0.6067903 | 0.2022634 | 0.6 | 2.4 | 1.8 |

**Counts Section of nitrite when ref_loc=TRPref**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 37 | 9 | 1 | 9 | 11.5 | 17.64 | 2.945555 |

**Means Section of nitrite when ref_loc=TRPref**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 1.277778 | 1.4 | 1.150148 | 1.033974 | 11.5 | 0.6 |
| Std Error | 0.2022634 | | | | 1.820371 | |
| 95% LCL | 0.8113575 | | | | 7.302217 | |
| 95% UCL | 1.744198 | | | | 15.69778 | |
| T-Value | 6.3174 | | | | | |
| Prob Level | 0.000228 | | | | | |
| Count | 9 | | 9 | 9 | | 1 |

**Summary Section of TP when ref_loc=PTPref**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 18 | 9.902778 | 9.43377 | 2.223561 | 4.9 | 46.3 | 41.4 |

**Counts Section of TP when ref_loc=PTPref**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 37 | 18 | 0 | 16 | 178.25 | 3278.103 | 1512.932 |

## Descriptive Statistics Report


Database I:\35Z01503\FS-12 SPEIM\Asse ... hem for descriptive stats.S0

**Means Section of TP when ref_loc=PTPref**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 9.902778 | 6.575 | 8.178307 | 7.409242 | 178.25 | |
| Std Error | 2.223561 | | | | 40.0241 | |
| 95% LCL | 5.211474 | | | | 93.80653 | |
| 95% UCL | 14.59408 | | | | 262.6935 | |
| T-Value | 4.4536 | | | | | |
| Prob Level | 0.000349 | | | | | |
| Count | 18 | | 18 | 18 | | |

**Summary Section of TP when ref_loc=SNP**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 9 | 10.24444 | 2.538755 | 0.8462517 | 8.1 | 14.2 | 6.1 |

**Counts Section of TP when ref_loc=SNP**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 37 | 9 | 0 | 7 | 92.2 | 996.1 | 51.56222 |

**Means Section of TP when ref_loc=SNP**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 10.24444 | 9.1 | 9.985366 | 9.752579 | 92.2 | |
| Std Error | 0.8462517 | | | | 7.616265 | |
| 95% LCL | 8.292984 | | | | 74.63686 | |
| 95% UCL | 12.1959 | | | | 109.7631 | |
| T-Value | 12.1057 | | | | | |
| Prob Level | 0.000002 | | | | | |
| Count | 9 | | 9 | 9 | | |

**Summary Section of TP when ref_loc=TRPref**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 9 | 11.47778 | 4.230478 | 1.410159 | 7.5 | 17.8 | 10.3 |

**Counts Section of TP when ref_loc=TRPref**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 37 | 9 | 1 | 6 | 103.3 | 1328.83 | 143.1756 |

**Descriptive Statistics Report**

Page/Date/Time 11 11-17-2001 17:35:25
Database I:\35Z01503\FS-12 SPEIM\Asse ... hem for descriptive stats.S0

**Means Section of TP when ref_loc=TRPref**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 11.47778 | 10.2 | 10.84951 | 10.31266 | 103.3 | |
| Std Error | 1.410159 | | | | 12.69143 | |
| 95% LCL | 8.225945 | | | | 74.0335 | |
| 95% UCL | 14.72961 | | | | 132.5665 | |
| T-Value | 8.1393 | | | | | |
| Prob Level | 0.000039 | | | | | |
| Count | 9 | | 9 | 9 | | |

**Summary Section of ORP when ref_loc=PTPref**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 18 | 0.6888889 | 0.3660423 | 8.627699E-02 | 0.3 | 1.6 | 1.3 |

**Counts Section of ORP when ref_loc=PTPref**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 37 | 18 | 0 | 10 | 12.4 | 10.82 | 2.277778 |

**Means Section of ORP when ref_loc=PTPref**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 0.6888889 | 0.65 | 0.604768 | 0.5310508 | 12.4 | 0.3 |
| Std Error | 8.627699E-02 | | | | 1.552986 | |
| 95% LCL | 0.5068604 | | | | 9.123487 | |
| 95% UCL | 0.8709174 | | | | 15.67651 | |
| T-Value | 7.9846 | | | | | |
| Prob Level | 0.000000 | | | | | |
| Count | 18 | | 18 | 18 | | 5 |

**Summary Section of ORP when ref_loc=SNP**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 9 | 1.072222 | 0.3260666 | 0.1086889 | 0.7 | 1.7 | 1 |

**Counts Section of ORP when ref_loc=SNP**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 37 | 9 | 0 | 6 | 9.65 | 11.1975 | 0.8505555 |

## Descriptive Statistics Report


Database I:\35Z01503\FS-12 SPEIM\Asse ... hem for descriptive stats.S0

**Means Section of ORP when ref_loc=SNP**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 1.072222 | 1 | 1.0322 | 0.996707 | 9.65 | 0.85 |
| Std Error | 0.1086889 | | | | 0.9781999 | |
| 95% LCL | 0.8215852 | | | | 7.394267 | |
| 95% UCL | 1.322859 | | | | 11.90573 | |
| T-Value | 9.8651 | | | | | |
| Prob Level | 0.000009 | | | | | |
| Count | 9 | | 9 | 9 | | 3 |

**Summary Section of ORP when ref_loc=TRPref**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 9 | 1.522222 | 0.6906117 | 0.2302039 | 0.7 | 2.3 | 1.6 |

**Counts Section of ORP when ref_loc=TRPref**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 37 | 9 | 1 | 6 | 13.7 | 24.67 | 3.815556 |

**Means Section of ORP when ref_loc=TRPref**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 1.522222 | 1.3 | 1.378175 | 1.245783 | 13.7 | 2.3 |
| Std Error | 0.2302039 | | | | 2.071835 | |
| 95% LCL | 0.9913711 | | | | 8.92234 | |
| 95% UCL | 2.053073 | | | | 18.47766 | |
| T-Value | 6.6125 | | | | | |
| Prob Level | 0.000167 | | | | | |
| Count | 9 | | 9 | 9 | | 3 |

**Summary Section of TOC when ref_loc=PTPref**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 18 | 2.500556 | 0.5689461 | 0.1341019 | 1.2 | 3.4 | 2.2 |

**Counts Section of TOC when ref_loc=PTPref**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 37 | 18 | 0 | 12 | 45.01 | 118.0529 | 5.502894 |

## Descriptive Statistics Report

| | |
|---|---|
| Page/Date/Time | 13 11-17-2001 17:35:25 |
| Database | I:\35Z01503\FS-12 SPEIM\Asse ... hem for descriptive stats.S0 |

**Means Section of TOC when ref_loc=PTPref**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 2.500556 | 2.5 | 2.427183 | 2.337439 | 45.01 | 2.3 |
| Std Error | 0.1341019 | | | | 2.413834 | |
| 95% LCL | 2.217625 | | | | 39.91726 | |
| 95% UCL | 2.783486 | | | | 50.10275 | |
| T-Value | 18.6467 | | | | | |
| Prob Level | 0.000000 | | | | | |
| Count | 18 | | 18 | 18 | | 4 |

**Summary Section of TOC when ref_loc=SNP**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 9 | 1.855556 | 0.6424779 | 0.2141593 | 1 | 2.7 | 1.7 |

**Counts Section of TOC when ref_loc=SNP**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 37 | 9 | 0 | 7 | 16.7 | 34.29 | 3.302222 |

**Means Section of TOC when ref_loc=SNP**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 1.855556 | 2 | 1.75192 | 1.649701 | 16.7 | 1.3 |
| Std Error | 0.2141593 | | | | 1.927433 | |
| 95% LCL | 1.361703 | | | | 12.25533 | |
| 95% UCL | 2.349408 | | | | 21.14467 | |
| T-Value | 8.6644 | | | | | |
| Prob Level | 0.000024 | | | | | |
| Count | 9 | | 9 | 9 | | 3 |

**Summary Section of TOC when ref_loc=TRPref**

| Count | Mean | Standard Deviation | Standard Error | Minimum | Maximum | Range |
|---|---|---|---|---|---|---|
| 9 | 1.4 | 0.3132491 | 0.1044164 | 1 | 1.8 | 0.8 |

**Counts Section of TOC when ref_loc=TRPref**

| Rows | Sum of Frequencies | Missing Values | Distinct Values | Sum | Total Sum Squares | Adjusted Sum Squares |
|---|---|---|---|---|---|---|
| 37 | 9 | 1 | 5 | 12.6 | 18.425 | 0.785 |

**Descriptive Statistics Report**

Page/Date/Time 14 11-17-2001 17:35:25
Database I:\35Z01503\FS-12 SPEIM\Asse ... hem for descriptive stats.S0

**Means Section of TOC when ref_loc=TRPref**

| Parameter | Mean | Median | Geometric Mean | Harmonic Mean | Sum | Mode |
|---|---|---|---|---|---|---|
| Value | 1.4 | 1.25 | 1.370042 | 1.3418 | 12.6 | |
| Std Error | 0.1044164 | | | | 0.9397473 | |
| 95% LCL | 1.159215 | | | | 10.43294 | |
| 95% UCL | 1.640785 | | | | 14.76706 | |
| T-Value | 13.4079 | | | | | |
| Prob Level | 0.000001 | | | | | |
| Count | 9 | | 9 | 9 | | |

JACOBS ENGINEERING
Engineers and Constructors
Jacobs Engineering Group Inc.
Building 318, 318 East Inner Road
Otis ANG Base, MA 02542 U.S.A.
1.508.564.5746 Fax 1.508.564.6425

10 December 2001

Mr. Robert M. Gill
Remediation Program Manager
HQ AFCEE/MMR
322 East Inner Road
Otis ANG Base, MA 02542-5028

SUBJECT: Contract F41624-00-D-8031
MMR Plume Response Program
TO 0015 DCN/PROJECT # A3P-J23-35Z01503-M31-0005
***Final Fuel Spill-12 2000 Annual System Performance and Ecological Impact Monitoring Report***

Dear Mr. Gill:

As directed by the Air Force Center for Environmental Excellence, Jacobs Engineering Group Inc. is providing 16 bound copies, one unbound copy, and one electronic copy of the above-referenced document. Copies are also being sent to the appropriate agencies.

Please feel free to contact me or Mike Morris at (508) 564-5746, extension 235, if you have any questions or comments. Ms. Rose Forbes is the Air Force point of contact for this project and may be reached at (508) 968-4670, extension 5613.

Sincerely,

Eric W. Banks, P. E.
Program Manager

EWB/cf

Enclosures: Document (16 bound, 1 unbound & 1 EDD)

c: Wells Hunt, RG (w/o attach. c/o IRP, 1)
AFCEE/ERD (1)
AFCEE/MSC (w/o attach., 1)
Spence Smith, AFCEE POC (1)
Connie Massenberg, HSW/PKVBC (w/o attach., 1)
Paul Marchessault, EPA (3)
Leonard Pinaud, DEP (2)
David Jacobson, CpEdws EPO (1)
Laura Loiero, SFIM-AEC-ER (1)
Ben Gregson, IAGWSO (1)
Denis LeBlanc, USGS (1)
Peter Golonka, GF (2)
Mark Hutson, EEG (1)
Mark Galkowski, Consv. (1)
David Mason, LBH (1)
Lisa Allinger, JEG (1)
Paul Clement, JEG (1)
Jim Defenderfer, JEG (1)
Mike Goydas, JEG (1)
Mike Morris, JEG (1)
Bill Klein, JEG (1)
Euan Reavie, JEG (1)
David Ward, JEG (1)
Jon Wood, JEG (1)
Doc. Control File, JEG (2)

I:\35Z01503\FS-12 SPEIM\Assessment Report\Final\Letter.doc